1/Mian. 2/Economic survey board
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p 476

The Honourable John Bracken,

Premier of Manitoba.

Sir,

I have the honour to submit herewith a report on The Commercial Fishing Industry of Manitoba, being Project No.3 under the Economic Survey, and fourth in a series of reports covering many phases of the economic and social life of the province. This report is the work of H.C. Grant, Ph.D.

I have the honour to be,

Sir,

Your obedient servant,

C.B.Davidson,
Director

Winnipeg, Manitoba.
April 14, 1938.

THE COMMERCIAL FISHING RESOURCES OF MANITOBA

- by -

H.C.Grant, B.S.A., M.A. Ph.D.
Assistant Professor of Economics, University of Manitoba,
Chairman of The Commission on The Fishing Industry,
Manitoba, 1933.

ACKNOWLEDGMENTS

Grateful acknowledgment is extended to J.B.Skaptason, Chief Inspector, Fisheries Branch, Department of Natural Resources, Province of Manitoba. Mr.Skaptason merits all the recognition of joint authorship without sharing certain responsibilities which his position could not permit him to assume. Other persons connected with the industry have been consulted on various technical points and their assistance and criticism is greatly appreciated by the author.

Prepared and Published
by
The Manitoba Economic Survey
C.B.Davidson - Director
H.C.Grant - Chief Research Associate

April, 1938.

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CHAPTER 1

INTRODUCTION

PURPOSE AND SCOPE OF THE SURVEY

The economic life of any region, province or nation, depends upon three factors. First is natural resources; second number and efficiency of the people that use and develop the natural resources, and third, kind, extent and efficiency of the institutions which the people set up to facilitate the progressive development of their social and economic life.

The broad facts of the nature of the human resource have been indicated in Volume I of the Report of the Manitoba Economic Survey entitled "The Population of Manitoba". In the present report certain incidental, but nevertheless important, aspects of the human factor in relation to the fishing industry will be discussed. In general, however, the main purpose of this survey is to portray the nature and extent of the fish resources of Manitoba, and to analyze in some detail the collective or institutional aspects of the production and marketing of fish.

Natural resources, as the name implies, are a gift of Nature. As such, no single generation of people should have the right to exploit these resources to the point of extravagance or threatened depletion. The exploitation and conservation of fishing resources present problems of magnitude and importance not met with in other industries. For example, our soil resources may suffer from unwise cropping practices, but history presents few examples of complete soil exhaustion. Fertility may be reduced but some soil is

always there upon which to build productivity by wise use. Mineral and lumber resources may run out but science comes to our rescue with substitutes.

But those resources which are biological in nature may be lost forever. Continuous commercial production depends upon physiological reproduction and if, in our pursuit of profit or pleasure, we destroy the reproductive base, science cannot rescue us from our folly.

Fresh water fisheries are more vulnerable to depletion and exhaustion than salt water fisheries. The feeding and breeding areas are more limited and more accessible to the fisherman. Even now these factors combine to make for a continuously diminishing supply in nearby waters and an ever extending search in more distant parts for commercially feasible sources of supply. This, of course, cannot go on forever.

This report is therefore an attempt to take stock of the present situation with regard to the fresh water fishing industry of Manitoba. From time to time in the past, Royal Commissions have investigated the fishing industry of Manitoba. These Commissions were usually instigated as the result of some critical situation which had arisen in the industry, as for example the Commission of 1933 which was empowered to examine for facts concerning the existence of a combine. Thus, the demands of urgent action sometimes preclude the possibility of a wide examination of fundamental facts, or the fundamental facts which the Commission reveals are obscured by the implementing of those recommendations which time and circumstance permit of being politically expedient.

We are prompted in this instance only by the desire to include in the broad survey of Manitoba's resources a concise portrayal and

appraisal of the fish resources of the province. At this time there is no particular critical problem demanding solution which should divide us into groups offering one solution or another. What is now needed is a calm, dispassionate and objective presentation of basic facts which may reveal the direction in which the policy of the industry should be charted. The authors at this point wish to recognize their debt to the public records of past Commissions, particularly for historical data. In general, the material contained in this report is the result of the opportunities which the authors have had to study the industry throughout some years of intimate administrative and public service in connection with the fishing resources of this province. Mr. Skaptason is responsible for the descriptive materials on the resource and the methods of production. Mr. Grant assumes the responsibility of authorship for the remainder of the report.

HISTORICAL DEVELOPMENT OF THE INDUSTRY

Commercial fishing operations in Manitoba may be said to date from 1882 when D.Clark and D.F.Reid operated a sail boat with a few nets on Lake Winnipeg. Their season's operations amounted to 127,000 pounds, largely of white fish, which they salted and cured and brought by boats to the city of Winnipeg. Two years later a steam tug, the "Lady Ellen" was put into service on Lake Winnipeg and this accounted for a considerable increase in production over what had been formerly obtained by sailing methods. In 1885 the catch was nearly one and a half million pounds which was marketed for $56,000. The catch was still largely salted and even at that time the greater part of

TABLE I

INLAND FISHERIES OF CANADA

Showing the comparative value of Manitoba Fisheries with the Inland fisheries of other provinces and of the Dominion for 1926 and 1936

Province	1926 Value in Dollars	1926 Percentage of Total	1936 Value in Dollars	1936 Percentage of Total
Ontario	$ 3.152.193	42.59	$ 3,209,422	51.65
Manitoba	2,328.803	31.46	1,667,371	26.83
Alberta	749,076	10.12	309,882	4.99
Quebec	677,892	9.15	617,135	9.93
Saskatchewan	444,288	6.00	367,025	5.91
New Brunswick	30,930	0.41	29,331	.47
Yukon	17,866	0.24	13,385	.22
Total for the Dominion	$ 7,401,048	100	$ 6,213,551	100
Value of all fisheries in Canada	$56,360,633		$39,165,055	

Fisheries Statistics of Canada
1926 - p.31 & 32
1936 - p.29

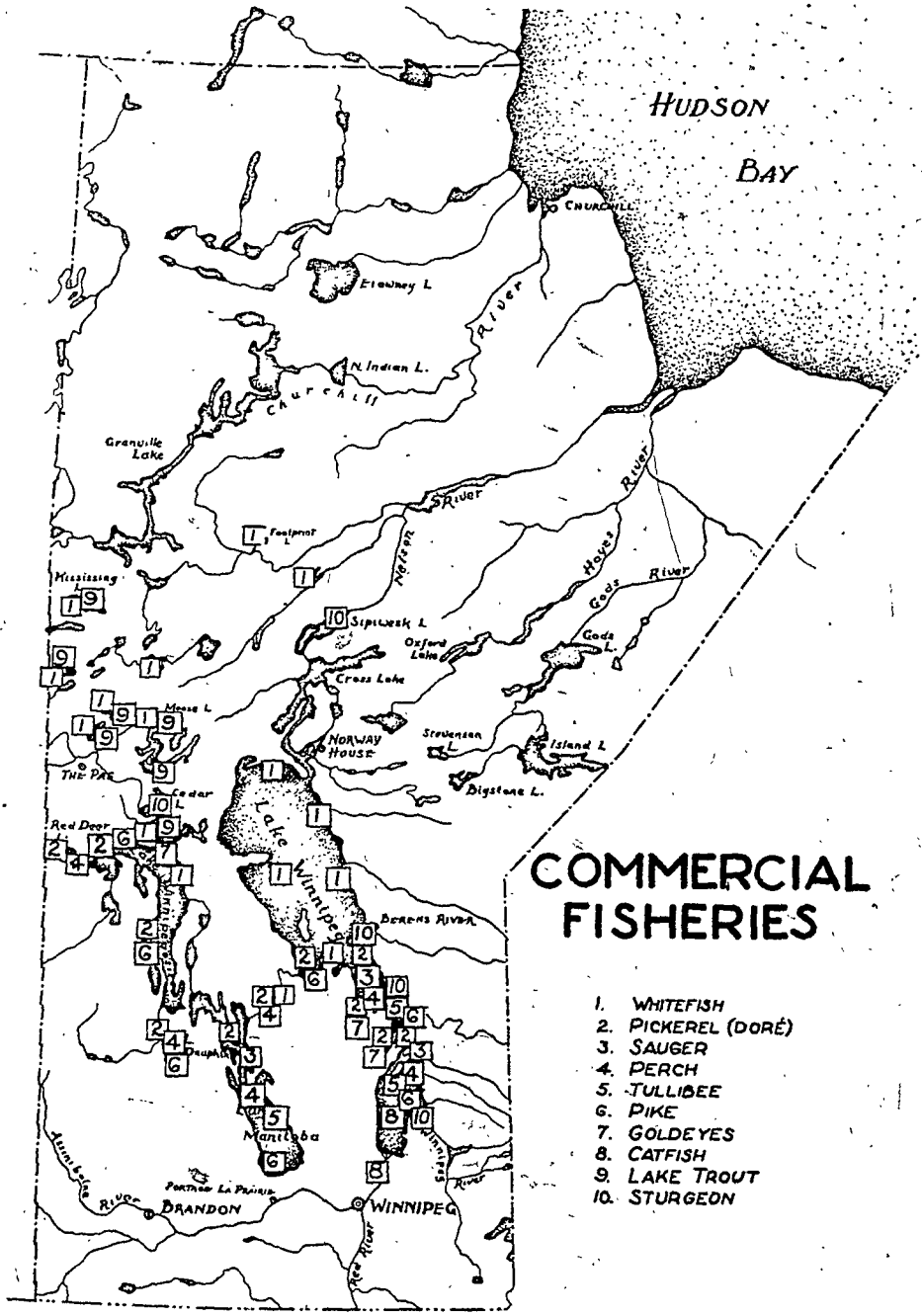
it was sold in the United States. In 1886 competitors to Clark and Reid appeared upon the scene and by 1887 seven tugs and barges and sixty-five sail boats sailed out of Selkirk, returning with over two and a half million pounds valued at $114,000.00

Ten years after the original venture there were 13 steam tugs and 67,000 fathoms of gill nets, valued at nearly $200,000, in operation on Lake Winnipeg, employing altogether over 250 men and producing nearly four million pounds of fish.

Fishing operations on Lake Manitoba did not commence until a later period. In 1885 Smalley and Chantler of Westbourne handled 100,000 pounds of fish. Hugh Armstrong of Portage la Prairie, during the same season, handled over 240,000 pounds, and there were other operators who handled smaller amounts. Fishing on Lake Manitoba, however, was largely confined, as it is now, to the winter months.

Lake Winnipegosis was fished commercially as early as 1890, but it was not until 1897, when this area was served with the railway, that fishing operations on a relatively large scale began to develop.

It may be said that in the year 1890 the fishing industry in Manitoba became firmly established and some idea of its progress since that date is indicated in the statistics for 1929 when the total catch for the province was 33 million pounds valued at 2.6 million dollars and having an investment in boats, fishing gear, buildings, etc., of slightly over one million dollars and providing employment for almost 5,000 men. At the present time the province


HUDSON
BAY
CHURCHILL
Etawney L.
N. Indian L.
Churchill
River
Granville Lake
Footprint L.
Nelson
River
Hayes
River
Gods
River
Mistissing
Sipiwesk L.
Oxford Lake
Gods L.
Cross Lake
Moose L.
NORWAY HOUSE
Stevenson L.
Island L.
Digstone L.
THE PAS
Cedar L.
Red Deer
Lake Winnipegosis
Berens River
Dauphin
Manitoba
Assiniboine River
PORTAGE LA PRAIRIE
BRANDON
WINNIPEG
Red River
Winnipeg River
COMMERCIAL FISHERIES
1. WHITEFISH
2. PICKEREL (DORÉ)
3. SAUGER
4. PERCH
5. TULLIBEE
6. PIKE
7. GOLDEYES
8. CATFISH
9. LAKE TROUT
10. STURGEON

of Ontario is the only province that exceeds Manitoba in quantities and value of fresh water fish production.

FISHING WATERS

The inland water areas of Manitoba are second in extent only to that of Ontario. While there are a large number of lakes and rivers which are of some importance for fishing in the northern sections of the province, the most important lakes, with their respective areas are as follows:

	Square Miles
Lake Winnipeg	9,460
Lake Winnipegosis	2,086
Lake Manitoba	1,775
Lake Dauphin	196
Lake St. Martin	125
Swan Lake	121
Waterhen Lake	76
Ebb and Flow Lake	39
Total -	13,878

In the enumeration of commercial fishing waters consideration should be given to 38 or 40 lakes in northern Manitoba. While many of these are small there are several of equal or even greater importance than many of those mentioned above. Such as Moose, Cedar and Athapapuskow. There are also several important waters known to contain valuable fisheries but not yet within the orbit of economic transportation. Chief of these are Oxford, Island, God's and Knee lakes to the north east, and south Indian lakes which are an expansion of the Churchill. While the last five have not been opened for commercial fishing the other 38 or 40 lakes are open for aggregate production limit of nearly 2½ million pounds.

It will be observed that Lake Winnipeg comprises approximately three quarters of the present important fishing waters of the province. In addition to its size, being 300 miles long and at its widest point being 70 miles broad, into it flow a large number of rivers and streams. The most important of these streams are the Saskatchewan, the Winnipeg, the Red, the Little Saskatchewan, the Brokenhead, the Bear, the Pigeon, the Berens, the Black, the Bloodvein, the Beaver, the Catfish, the Bad Throat and the Pelican. Because of its extent and navigability Lake Winnipeg is the centre of the fishing industry of the province of Manitoba.

Lake Winnipegosis is next in importance as a fishing water. Situated in the northwestern section of the province at the head of a chain of smaller lakes it serves as an emptying basin for a large number of rivers and streams that drain the Porcupine and Duck Mountains. It is, however, very shallow and not widely suitable for extensive navigation. Nevertheless small freighting steamers and large launches operate over most of its area and permit the establishment of fishing stations and the consequent transportation of large quantities of fish to the railhead.

Lake Manitoba is of some peculiar importance as a fishing water in this province. It is very centrally located and unlike Lake Winnipeg and Lake Winnipegosis its boundaries are largely given over to the cultivation of arable land and to ranching. For this reason fishing on Lake Manitoba is carried on to a large extent as a part time occupation in connection with agricultural pursuits. The lake is only open for fishing in the winter months and thus seasonal employment, in a period when agriculture is largely dormant, is

TABLE 2.

FISH PRODUCING AREAS PRODUCTION

Showing the origin, kinds and quantities of fish landed and marketed in Manitoba during 1927 and 1937

Fishing District	Season	Kind of Fish	1927 Quantity in Pounds	1937 Quantity in Pounds
Lake Winnipeg	Summer	Pickerel	3,072,400	3,468,000
		Whitefish	2,567,900	2,048,900
		Tullibee	1,947,500	135,300
		Goldeyes	367,200	57,100
		Pike	354,800	272,500
		Catfish	143,400	10,800
		Saugers	49,800	936,100
		Sturgeon	33,800	27,200
		Drum	19,400	20,000
		Perch	7,500	42,900
		Mullets	4,000	16,900
		Mixed Fish	2,300	5,600
		Caviar	300	333
		All varieties	8,570,300	7,041,633
	Winter	Tullibee	5,210,000	895,500
		Pickerel	1,288,700	565,100
		Goldeyes	354,200	103,500
		Pike	265,200	175,300
		Whitefish	258,100	3,500
		Saugers	172,300	5,456,000
		Perch	30,500	57,600
		Mullets	4,700	10,600
		Mixed fish		5,600
		All varieties	7,583,700	7,272,700
Total production for Lake Winnipeg			16,154,000	14,314,333

TABLE 2 (cont'd)

Fish Producing areas production - Cont'd

Fishing District	Season	Kind of Fish	1927 Quantity in Pounds	1937 Quantity in pounds
Lake Winnipegosis	Summer	Pickerel	874,800	1,019,300
		Whitefish	207,300	26,300
		Pike	87,700	77,600
		Mullets	51,800	-
		Tullibee	2,400	-
		Goldeyes		8,900
		All varieties	1,224,000	1,132,100
	Winter	Pickerel	1,664,400	3,037,300
		Pike	1,397,500	804,700
		Mullets	854,300	604,400
		Whitefish	511,400	10,500
		Goldeyes	378,400	360,900
		Tullibee	124,800	51,900
		Perch	4,600	60,500
		Saugers		20,700
		All varieties	4,935,400	4,950,900
Total production for Lake Winnipegosis			6,159,400	6,083,000
Lake Manitoba	Winter	Tullibee	2,845,900	536,900
		Pickerel	2,610,600	2,002,000
		Pike	1,731,600	903,200
		Mullets	225,400	232,700
		Whitefish	189,400	1,700
		Perch	162,000	596,300
		Saugers	20,900	1,833,700
		All varieties	7,785,800	6,106,500
Total production for Lake Manitoba			7,785,800	6,106,500

TABLE 2 (cont'd)

Fish Producing Areas Production - Cont'd

Fishing District	Season	Kind of Fish	1927 Quantity in Pounds	1937 Quantity in Pounds
Lake Dauphin	Winter	Pickerel	115,100	54,700
		Tullibee	42,100	21,000
		Goldeyes	42,000	15,500
		Perch		3,200
		Pike	17,800	10,900
		Saugers		100
		Mullets	14,300	14,400
		All varieties	231,300	119,800
Total production for Lake Dauphin			231,300	119,800
Lake St.Martin	Winter	Whitefish	71,200	1,600
		Pickerel	39,000	11,100
		Pike	17,600	8,400
		Mullets	10,200	10,000
		Perch	9,400	1,800
		Saugers		3,800
		Tullibee	5,200	
		All varieties	152,600	36,700
Total production for Lake St.Martin			152,600	36,700
Buffalo Bay (Lake of the Woods)	Summer	Pickerel	44,900	20,100
		Tullibee	17,500	-
		Pike	15,200	2,500
		Mullets	6,100	500
		Carp	4,000	-
		Saugers	2,800	16,400
		Perch	1,700	19,200
		Whitefish	300	200
		Goldeyes	200	-
		All varieties	92,700	58,900
	Winter	Tullibee	3,000	1,000
		Perch		500
		Pickerel	1,500	2,000
		Suckers		400
		Pike	1,100	400
		Whitefish		1,000
		Saugers	300	400
		All varieties	5,900	5,700
Total production for Buffalo Bay			98,600	64,600

TABLE 2 (cont'd)

Fish Producing Areas Production - Cont'd

Fishing District	Season	Kind of Fish	1927 Quantity in pounds	1937 Quantity in Pounds
The Pas	Summer	Whitefish	92,400	102,800
		Sturgeon	33,400	18,000
		Pickerel	32,000	10,000
		Trout	27,300	28,000
		Pike	10,000	-
		Caviar	600	120
		All varieties	195,700	158,920
	Winter	Whitefish	960,400	1,024,300
		Pickerel	201,300	191,000
		Trout	83,800	96,200
		Pike	72,500	90,700
		Tullibee	40,700	52,400
		Mullets		7,200
		Sturgeon	14,800	
		Herring	2,000	
		All varieties	1,375,500	1,461,800
Total production for The Pas			1,571,200	1,620,720
Lake Waterhen	Winter	Whitefish	53,000	400
		Pike	45,600	44,000
		Pickerel	36,600	21,500
		Saugers		400
		Mullets	3,100	4,600
		Perch	400	900
		All varieties	138,700	71,800
Total Production for Lake Waterhen			138,700	71,800
Snow Shoe Bay (Sheal Lake)	Summer	Pickerel		8,500
		Pike		7,900
		Whitefish		3,900
		All varieties		20,300
Aikens Lake Tp.26. Rge. 16E	Winter	Pickerel		3,900
		Whitefish		5,000
		Trout		6,400
		Pike		300
		All varieties		15,600

provided for the settlers on the margin of the lake. Another factor of some importance is that railroads go up both sides of the lake making transportation less costly and shipping stations available for fishermen at numerous points along the lake. While this peculiar economic pattern of agriculture and fishing has been of great help to the settlers and has aided in the development of this area, there have arisen therefrom problems which are of some importance to the fishing industry itself. These problems will be dealt with later on in the body of this report.

The greater part of the summer production comes from Lake Winnipeg. This lake is in almost continuous production during summer and fall. June and July are a whitefish season in the northern part, sturgeon fishing during the same period and catfish in the south throughout the summer. Extensive pickerel operations are conducted in September and October. Pickerel operations are confined to that part of the lake south of the line drawn across the lake from Catfish Point to Cathead on the west shore, and then south on both sides of the lake to the Red River.

ORGANIZATION OF THE INDUSTRY

Until about ten years ago, the whitefish production on Lake Winnipeg was controlled by a few companies with headquarters in Selkirk and Gimli. These firms were: The Northern Fish Company; The Manitoba Transport Company; The Booth Fish Company; Roderick Smith, and the Armstrong Gimli Fisheries. The production limit, then as now, stood at three million pounds. Of this amount one million pounds each was allotted to the first two companies named above and the remaining million divided between the other three

concerns. The Booth Fisheries and the Armstrong Gimli Fisheries were, and are still, American controlled with Canadian directorates to comply with regulations. The other three companies were entirely locally owned. These companies controlled the freighting of the fish, each having a steamer which carried the fish from their own lake stations to Selkirk and Gimli. Of the above companies, only two are still in operation - the Booth Company and the Armstrong Gimli Fisheries. These two companies at the same time handled most of the export business.

At the present time, that is the 1937 season, whitefish operations are carried on by thirteen producing concerns operating sixteen stations as given below. Of the old exporters only the Armstrong Gimli Fisheries operate their own station.

Armstrong Gimli Fisheries	Warren's Landing
Bjornson Bros.	Big George's Island
	McCreary Island
Canadian Fish Producers	Big Black River
Hallgrimson Fisheries	Big Black River
Hodgson Trading Company	Big Black River
Fresh Water Fisheries	Poplar Point
Magnusson Bros.	Little George's Island
	Shoal Point
H.M.McGinnes	Poplar Point
Lake Manitoba Fisheries	Sandy Island
Purvis Bros.	Warren's Landing
Sigurdson Fisheries	Spider Island
	Berens River
Sigurdson & Sigmundson	Spider Island
H.Thorsteinson	Birch Island

In addition to the above, the following whitefish stations are held in readiness for operation should conditions and run of fish warrant their use:

Booth Fisheries	Warren's Landing
	Spider Island
	Big Black River and
	Big George's Island
Armstrong Gimli Fisheries	Big George's Island
Hodgson Trading Co.	Warren's Landing

TABLE 3.

The number and value of boats, buildings and materials used for fishing purposes in Manitoba - 1927 and 1937

1927		1937	
Description and number	Value	Description and number	Value
Boats			
20 steam tugs (1710 tons)	$ 240,048	5 steam tugs (322 tons)	$ 29,650
953 canoes, sail & row boats	54,665	7 Diesel freighters (420 tons)	73,000
105 gasoline boats	55,750	8 gasoline freighters (89 tons)	12,400
2 barges	5,000	2 barges (125 tons)	5,650
		166 gasoline fishing boats	126,350
		764 fishing skiffs & canoes	22,345
Total	355,463	Total	269,395
Buildings			
43 piers & wharves	54,093 (1)	68 piers & wharves	18,180
85 ice houses and freezers	106,430	102 ice houses & freezers	123,830
77 small fish & smoke-houses	24,850	131 small fish & smoke-houses	14,600
Total	185,373	Total	156,610
Nets and Equipment			
55270 gill nets	483,558	69553 gill nets	516,645
16 pound nets	3,200	1 pound net	250
13 hoop nets	150	18 hoop nets	310
138 line nets	487	40 line nets	78
10 dip nets	40		
Total	487,435	Total	517,483
Total valuation	$1,028,271		$ 943,488

(1) This valuation appears to be extreme as compared with 1937 data. Other discrepencies in the statistics have been observed by the authors. Evidently some of the fish companies do not give sufficient attention to filling out the questionnaire sent out by the Department. We cannot stress too strongly the desirability of obtaining accurate information when the annual report is compiled.

The foregoing producers operated a total of 133 gas boats during the 1937 season compared with 166 boats the summer before, each boat manned by four men and using 5,000 yards of gill nets. Most of the gas boats are owned by the station operator, sometimes called the packer, who charges a rental to the "Boat Runner" of from $100.00 to $125.00 for the use of a boat for the two-month season. The "Boat Runner" again pays all expenses such as wages, costs of nets, gas and oil and receives a straight price per pound for the production delivered at the station. For the past two summers this has been eight cents per pound dressed weight. The actual expense of operating a boat for the two months runs from $1,400 to $1,500, (allowing for a small wage to the "Boat Runner"), not allowing for such salvage as may be left in nets at the end of the season which is usually figured at from 25 per cent to 35 per cent, or from $175.00 to $225.00.

The freighting on Lake Winnipeg is now largely handled by the station operators and by independent freighters. Smaller diesel engine-driven boats have largely replaced the steamers. There are also smaller stations scattered along the shores from Dog Head down through the narrows on both sides of the lake to Big and Black Islands; and then along the settlement, commencing with Big or Hecla Island to the mouth of the Red River, settlers fish from their homes.

During the past decade the balance of control of the production of whitefish on Lake Winnipeg has gradually shifted from five large companies to that of locally owned and operated concerns. Perhaps the most important development is the organization of the station

operators into an association which is known as the Lake Winnipeg Fish Producers Association.

Another important change is the replacing of sail boats with gasoline boats. When sail boats were used, each station had to maintain a steam tug for the purpose of towing the boats to the fishing grounds, a distance of from five to fifteen miles from the station, and in calm weather or during adverse winds gather these boats up again when the day's fishing was over. These tugs were also licensed to fish under what was known as "tug license", that is, 5,000 yards of nets as against 3,000 yards allotted to sail boats. It will be readily understood this did not permit the sail boats much liberty of individual action. They had to stay close to the towing tug or lose their tow back. The result was that fishing tended to be concentrated in particular areas favoured by the tug operator. With the gas boats it is possible for each boat, acting individually, to range over a much wider area. This permits more regular lifting of nets and less wastage of fish. A staunch motor boat can lift in weather in which sail boats could not operate.

On Lake Winnipegosis the following stations and companies are operating at present:

Armstrong Gimli Fisheries	Whiskey Jack Island
Booth Fisheries	Whiskey Jack Island
H.W.Grenon	Grand Island
Dawson Bay Fisheries	Dawson Bay
Keystone Fisheries	Dawson Bay

To make the picture complete in respect to the five big operating companies, H.W.Grenon sold to, or operated in conjunction with, the Lake Manitoba Fisheries, while the Dawson Bay Fisheries produced for the Northern Lakes Fish Company. The two companies operating out of Dawson Bay ship their fish via Mafeking and some is moved

by trucks over the new highway. The other three operators continue to ship by boat to Winnipegosis.

Operations on Lake Manitoba will be dealt with in detail in the section on winter fishing (See Chapter 3).

CHAPTER II

THE DEMAND FOR FRESH WATER FISH

A study of the facts relative to demand should precede any appraisal of the productive factors. Within limits many of the commodities produced and consumed in modern society can have a created demand. On closer analysis, however, many of our modern demand creating devices are merely efforts on the part of one or more producers to direct a demand which already exists into channels which benefit the particular product which the producer has to sell. For instance, the demand for flour of a certain brand may be stimulated by advertising, but the basic demand for flour might not necessarily be increased. The basic demand for flour, or any other commodity, is determined by a large number of factors which it is not our purpose to explore at this point. Fish, like many agricultural products, has certain characteristics of demand which the producers must understand before supply is intelligently brought forward. The total demand for foodstuffs is limited by the capacity of the human stomach. Other commodities, such as clothing, have psychological layers of demand which may be influenced by demand-creating methods. People can be induced to buy more clothes or better clothes for purposes of display or to satisfy their personal vanity. But there is little demand of this nature for basic foodstuffs; once the appetite has been satisfied the demand largely ceases. In brief then, the successful production and marketing of any product depends to a large extent on an accurate knowledge of the factors affecting demand.

MAJOR USES

Fish in general have certain industrial uses but they are of minor importance. In this connection we except the fish canning industry and refer only to such instances as medicinal preparations and fertilizer products. With respect to fresh water fish, however, the canning industry is of little importance, the demand for the product being entirely for the table either in a fresh, frozen or smoked form. Generally speaking, the larger the number of uses to which a product can be put the more stable the demand. If the demand is narrow and the product does not permit of preservation or storage in some form or other, then the market is always in a dangerous stage of equilibrium and prices may be thrown out of line with slight changes in the supply. It must be recognized at the outset that the Manitoba fish industry suffers from this disability. If the chief outlet for fish was into a well organized processing industry, continuously functioning to meet a well studied demand which could more or less be anticipated in advance of production, then many of the chronic ailments of the industry would disappear.

QUANTITATIVE ASPECTS OF DEMAND

By far the major part of our production finds a market in the United States. The term "fish eaters", if it has any meaning, can not be applied to the people of the prairies. Indeed it has been stated on some authority that what fish is eaten by prairie people consists more largely of the products of the Pacific and Atlantic fisheries than of our own prairie lakes.

The major markets in the United States are the large eastern cities, particularly Chicago and New York. In these markets Manitoba fish comes into competition not only with the fish from the Great Lakes, but also with the fresh salt-water products of the Atlantic off-shore and deep-sea fisheries.

In all markets, and in some markets particularly, the sociological aspects of demand are very important. Religion plays a well known part in the picture. The concentration of demand on Friday introduces a condition which cannot be ignored but which is most difficult to meet. It is difficult at any time to co-ordinate production with demand but when the commodity is highly perishable and the supply depends largely upon chance and weather and the market is in a distant area, the close co-ordination of supply and demand is almost impossible. Another sociological factor which is of considerable importance is that the demand in certain markets, particularly New York, is largely limited to the Jewish people.

Religious holidays in the autumn and again at Easter time present the major and most important seasonality of demand.

QUALITATIVE ASPECTS OF DEMAND

As far as the authors of this report are aware no studies have been made of the degree of elasticity of the demand for fish. That is to say, we know of no accurate evidence of what would be the effect on the quantity purchased if the price of fish were raised or lowered. If a food-stuff is an essential or customary part of the diet then within limits variations in price have little effect on the amount consumed. Also, if it is a necessity or a customary article of

consumption and there are no substitutes, then the same condition exists. But even the necessity for and custom of a large number of our people to eat fish on Friday does not, of course, mean that fresh water fish are not affected by changes in price. That is to say, if the price of fresh water fish seems to be too high consumers may purchase salt water fish, or if that in turn is too high demand may be satisfied by consuming canned fish.

From the specialized nature of demand outlined above the consumption of fish ranges upward to that of a luxury product. This wide diversity makes the retail handling of fish a most hazardous and complicated business. It is no wonder that the retailer prefers to handle the preserved or canned product in preference to the fresh. As long as the consumers' demand remains as it is, the retailer cannot be blamed for adopting and continuing his present policy. And as long as that policy exists the progressive development in the merchandising and consumption of fresh fish will be handicapped.

There is little skill exercised on the part of the buyer for some commodities. This may arise because the buyer cannot or does not need to exercise skill in determining quality. The ultimate consumer of smoked fish or canned fish seldom buys on a quality basis or if he does he does so on the basis of standard brand or grade. But the writers observed in a first-hand study of the major markets of the United States that both the small jobber and the ultimate consumer bought definitely by means of eye and touch. That is to say, that the fish was handled by the ultimate purchaser to determine the fatness and freshness of the fish. The perishability of the product and the distance from the markets make it even more significant and true to say that the quality demands of the consumer cannot be ignored.

CHAPTER III

THE PRODUCTION OF MANITOBA FISH

THE PRODUCT

The most outstanding characteristic of fish as a product is its perishability. Indeed the whole production and marketing of Manitoba fish is so much surrounded by the risk of deterioration that this factor alone is responsible for many of the problems and difficulties of the fishermen and the distributors. The validity of this statement will be borne out in further sections of this report. At this point it is only necessary to say that the perishable nature of the product does not permit of the wide application of quality grading or standardization. If a product is not graded or standardized definite limitations are placed on the extent of the marketing processes. The grading of a product facilitates financing, storage, and sale for future delivery. When a product is not graded disputes are almost inevitable and adjustments almost impossible to arrive at. Where products are not graded the producer of high quality products is penalized, and the mingling of good and poor qualities is a detriment to the industry as a whole. As yet no satisfactory means has been devised for government inspection and grading of fish. There is really no insurmountable difficulty in devising grades, the difficulty comes in their application. The perishable nature of the product and the nature of the production and marketing processes make it almost impossible to effect a satisfactory method of grading. This will be made clear at a later point in this chapter.

Whitefish and pickerel have been, until recently, Manitoba's most important fishing products. In the early years of the industry, whitefish was the all important variety in nearly all our waters, particularly Lakes Winnipeg and Winnipegosis and the lakes of northern Manitoba. The importance of a fisherman's seasonal production was measured by the whitefish he brought to market. All else was merely a side issue. While the northern lakes are still producing whitefish to the extent of 65 to 70 per cent of their total annual production, depletion in the larger lakes to the south has become quite noticeable and pickerel is now the predominant variety produced, with saugers, a smaller but near variety of pickerel, a close second. Accompanying tables show relative figures of production for a number of years past. Pickerel or "yellows" as this variety is generally known by the trade, while present in nearly all the lakes of Canada, appear to be essentially a Manitoba product. Over a number of years the annual production has ranged from eight million to well over ten million pounds. While the distribution of this fish covers all our waters, the three large lakes are the chief producers of pickerel. On Lakes Winnipeg and Winnipegosis it has replaced whitefish as the variety of chief importance. On Lake Manitoba saugers are becoming more important than pickerel. Pickerel has taken quite a hold on the American fresh fish market and has been known to command a price as high as 20 to 30 cents per pound f.o.b. shipping points.

Saugers, as will be seen by a study of the Chart in Chapter V, have been rapidly growing in importance. It appears to be entirely a Manitoba variety, at least mention of it is not to be found in Dominion statistics from any other province.

The goldeye is another variety very largely confined to Manitoba waters with only a few thousand pounds of annual production from the other prairie provinces. Manitoba's annual production ranges around 500,000 pounds. Goldeyes are chiefly used in the smoking trade and Manitoba's smoked goldeyes are widely recognized as a delicacy. Other commercial varieties of importance are perch, pike, catfish, tullibee, mullet (suckers) and lake sturgeon.

METHODS OF PRODUCTION

Winter fishing accounts for the major share of Manitoba's fish production. In 1937 about 20 million pounds were caught in the winter time and only 8½ million pounds were landed in the summer and fall.

In summer and fall the boats pull out from the camps about daybreak, each boat carrying a crew of four men, which includes boat runner and engineer. The size of the fishing boats generally in use is from 32 to 36 feet in length. These boats are now granted a license for the same yardage of nets, 5,000 yards, as was previously used by steam tugs. When the boat reaches the locality selected for that day's setting, the end buoy is thrown overboard and after that the anchor stone. The buoy is an ordinary round rail 12 to 14 feet long, about 3 inches in diameter at bottom and 2 inches at top. About two-thirds of the way down it is fitted through a cedar bowl about 10 inches in diameter and 12 inches deep. This gives it buoyancy. On the upper end of the buoy is a canvas flag on which is painted the license number under which the nets are being fished. The nets are "payed" out over the side of the

TABLE 4.

ORIGIN OF FISH CAUGHT AND MARKETED IN THE SUMMER MONTHS

	Lake Winnipeg Production		Lake Winnipegosis Production		The Pas Production		Buffalo Bay Production		Shoal Lake East	Total Production	
	1927	1937	1927	1937	1927	1937	1927	1937	1937	1927	1937
Pickerel	3,072,400	3,468,000	874,800	1,019,300	32,000	5,000	44,900	20,100	8,500	4,024,100	4,520,900
Whitefish	2,567,900	2,048,900	207,300	26,300	92,400	102,800	300	200	3,900	2,867,900	2,182,100
Tullibee	1,947,500	135,300	2,400	-	-	-	17,500	-	-	1,967,400	135,300
Goldeyes	367,200	57,100	-	8,900	-	-	200	-	-	367,400	66,000
Pike	354,800	272,500	87,700	77,600	10,000	-	15,200	2,500	7,900	467,700	360,500
Catfish	143,400	10,800	-	-	-	-	-	-	-	143,400	10,800
Saugers	49,800	936,100	-	-	-	-	2,800	16,400	-	52,600	952,500
Sturgeon	33,800	27,200	-	-	33,400	17,000	-	-	-	67,200	44,200
Drum	19,400	20,000	-	-	-	-	-	-	-	19,400	20,000
Perch	7,500	42,900	-	-	-	-	1,700	19,200	-	9,200	62,100
Mullets	4,000	-	51,800	-	-	-	6,100	-	-	61,900	-
Mixed Fish	2,300	-	-	-	-	-	-	-	-	2,300	-
Caviar	300	333	-	-	600	-	-	-	-	900	333
Trout	-	-	-	-	27,300	28,000	-	-	-	27,300	28,000
Carp	Sulkers	16,900					4,000	500		4,000	17,400
	8,570,300	7,036,033	1,224,000	1,132,100	195,700	152,800	92,700	58,900	20,300	10,082,700	8,400,133

boat while the engine is running at slow speed. Five ounce lead sinkers spaced about six feet apart are attached to the nets, The top line is fitted with cedar floats which keep the net in an upright position. The 5,000 yards of nets used by each boat are variously set in one string, or in two or three string settings. Whichever it is, there must be a visible buoy at each end of every string of nets with the license number painted clearly on the flag. These buoys and numbered flags act as a guide for the owner in finding his nets, and by them patrol officers can at once locate ownership.

The nets are lifted daily when weather permits. As the nets are pulled into the boat the fish are taken out and put into what is known as the "fish pocket" amidship. This pocket is from 5 to 6 feet long and in breadth, the entire width of the boat. It is lined with boards on sides and bottom so that the fish may be kept out of the bilge water. Before the lifting commences, or any fish are put into the "fish pocket", the bottom is covered with a layer of crushed ice and during the process of lifting, ice is continually added so that it may be said the fish are kept smothered in ice from the time they are taken from the net until they are landed at the station, which may be for a period as long as eight hours. The practice is acknowledged by experienced men in the industry to be the most important factor in the process of summer fishing. The manner in which the fish are handled during the first hour has an important bearing on quality, whether for fresh or frozen use. This point can not be too strongly stressed. The nets are brought ashore on Saturday, washed in limed water and reeled up to dry until

Sunday afternoon when they are again made ready for setting on Monday morning.

When the fishing boat reaches the station the fish are immediately transferred to bins attached to the dressing sheds. Here again ice is applied while the boat crew is doing the dressing. At the same time culling is done and drowned fish discarded.

The fish are then weighed in 105 pound lots (the standard weight is 100 pounds but 5 pounds over-weight is packed to allow for shrinkage), and immediately packed in ice and placed in coolers for shipment to Selkirk or Winnipeg (in 50 pound boxes when intended for export or sale fresh). Most of the Lake Winnipeg whitefish is destined for the American smoking trade and for that purpose it is frozen and kept in cold storage pending shipping to the American markets. When the fish have been dressed they pass out of the hands of the fishermen to those of the packer or fish company.

Whitefish are graded by size during the packing at the fishing stations. On account of the highly perishable nature of the product—this is the only point in the production or marketing process where grading can be done, when intended for sale fresh. The following are trade standard sizes of fish (dressed):

<u>Whites</u>
Up to $1\frac{3}{4}$ #
Medium - $1\frac{3}{4}$ to 3 #
Large - 3 to 4 #
Jumbo - 4# and up.

<u>Pickerel</u>
Pickerel are at times graded to sizes according to market requirements. The general run is from 2 to 3 pounds dressed weight. (1)

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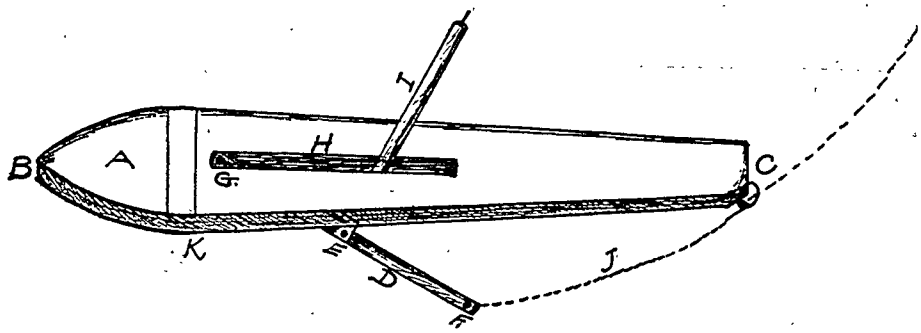
(1) Some of the northern lakes produce large sized "yellows" and these are sold to a special trade as "Jumbos".

JIGGER



A. CEDAR PLANK 2"x10"x12'
B. " " SHAPED TO A POINT
C. " " " TO 5"
D. IRON BAR 3/16"x2"x5'
E. CARRIAGE BOLT
F. HOLE IN IRON BAR FOR ROPE
G. IRON BAR BOLTED (ON SWIVEL) TO PLANK
H. OPENING IN PLANK TO ALLOW SPACE FOR BARS TO WORK IN. SIZE 2"x4'
I. WOODEN BAR MADE OF 3 PIECES; CENTRE STRIP, SPRUCE ½"x2"x4' WITH SIDE STRIPS OF OAK ½x2", EXTENDING OVER END ATTACHED TO IRON BAR "D" WITH BOLT "G". A 6" SPIKE IS USED IN UPPER END.
J. CONTROL ROPE
K. STRIP, PAINTED RED. 6" WIDE (EASY TO DETECT THROUGH ICE)

Sturgeon 18 pounds in round (undressed) is the smallest size permitted to be taken. An 18 pound sturgeon will dress down to 12 to 14 pounds. Sturgeon weighing dressed from 15 pounds and up are classed as No.1; from 12 to 15 pounds, No.2; and anything under that is not desirable or wanted for the smoking market. There is another grade classed as cows. These are female fish generally large in size which have just spawned. These fish are not desirable and have no classification.

The standard pack for fresh fish for the market, both summer and winter is in boxes containing either 50 or 100 pounds of fish. These boxes, when packed weigh approximately 100 and 200 pounds, including ice and box.

PROCESS OF FREEZING FISH

Almost invariably the fish are dressed before freezing. The first step is to wash it thoroughly in water saturated with crushed ice to keep the temperature down to the lowest point possible. This is important to ensure that the fish do not soften. The old system used at receiving stations on the lake was to pack in galvanized iron pans having a depth of about $2\frac{1}{4}$ inches with a covering pan that entirely enclosed the pan in which the fish had been packed. The pans were than placed in a bin, the floor of which had been strewn with a mixture of crushed ice and coarse salt to a depth of about 3 inches. Each pan was separated from the adjoining pan by a space between of from 1 to 2 inches. On top of each layer was spread a mixture of crushed ice and salt (15% salt to 85% ice) to a thickness of from 2 to 3 inches. The whole was built up to a height of about 7 feet. Freezing took about 8 hours.

The fish, when it came out of the pan, was in a solid cake weighing about 20 to 25 pounds and fitted into the standard size

box for frozen fish. Usually there were 5 to 6 such cakes to a box. As soon as the cake was taken out of the pan it was placed in a cold room, usually a freezer, where it was dipped into a tub of water which immediately congealed and formed a glazed protection for the fish preventing atmospheric contact. If the fish were kept for a considerable time it was desirable to repeat the dipping process. More recently, however, it is the practice to bring the whitefish to freezers in Winnipeg. The modern ammonia system has been adapted to the needs of the fishing industry. The ammonia pipes are constructed and laid in tiers of shelves. The whitefish are placed in pans (without a cover) on the shelves where they are quickly frozen. The frozen fish are next removed from the pan into a vat of iced water where they take on the glazed-ice protection mentioned above.

FALL FISHING ON LAKE WINNIPEGOSIS

The fall fishing on Lake Winnipegosis is much similar to the summer fishing on Lake Winnipeg except that the shallow waters of this lake demand a different kind of net. Whereas on Lake Winnipeg 28 to 36 ~~inch~~ mesh nets are used, on Lake Winnipegosis only 16 to 22 ~~inch~~ mesh nets are employed. The season is somewhat shorter, the catch is somewhat lighter and fewer companies are established on the lake. There are five fishing stations, one at Whiskey Jack Island, one at Channel Island, one at Grand Island and two in Dawson Bay. In some cases, owing to shallow approaches to the station a slightly different system is used. Floating docks are towed up the lake before the opening of the fall season and to these docks the cargoes of fish are taken from each station, weighed up and transported to the railhead. Three of the stations

bring the catch to Winnipegosis every other day; the other two stations operating at Dawson Bay convey the catch by trucks to Mafeking.

WINTER FISHING

As has been indicated, the production of winter fishing comprises more than two-thirds of the total annual catch in Manitoba. It is in many respects quite different to the summer industry. For instance, many of those engaged in winter fishing are occupied in farming during the summer. Individuals, or small groups of individuals can, and do, set up fish camps on the lakes without having to rely on transportation furnished by the fish companies, and this permits greater freedom of sale and attracts a number of transient foreign and local buyers who make a business of buying fish only during the three and a half or four winter months when these conditions prevail.

On Lakes Winnipeg and Winnipegosis there are extensive fishing areas far from the railroad and all settlements. To reach these winter fishing camps open water transportation must be used. The movement to these camps takes place from the middle to the end of October. As these fishermen are isolated for about two months or until the first freighting outfit can reach them over the ice, they must take with them by boat a full equipment of their requirements for the season, including fishing gear, fish boxes and food supplies. They also must have dogs or horses for the purpose of conveying the fish to the camps and for moving the nets. Such fishing operations as a rule, cover many square miles of area and extend to considerable

distances from the fishing camp.

When the ice reaches a thickness of 3 to 4 inches, providing the season is open, the setting of the nets commences. How to set a net under ice that may be anything from 3 inches to 3 feet in thickness has puzzled many. A method used for many years but now somewhat out of date was the joining together of light pliable boards or sticks to reach a length of from 30 to 60 feet. These were put down through a hole in the ice and shoved along as far as they would reach, then another hole was made in the ice and the poles moved forward under the ice by means of a sharp metal pointed spear. A running line about the size of a clothes line was attached to the poles and this again was fastened to the nets which it was intended to set and which could now be easily pulled into position under the ice. This running line was also used throughout the winter in lifting the nets. When this method is used it entails chopping water holes every 30 to 60 feet apart, and if two men are together setting 2,000 yards of net each, this would mean approximately 340 water holes. This is not a serious matter when the ice is only a few inches thick, but it is most difficult or almost impossible to move and set nets several times during the winter when the ice may reach a thickness of more than 3 feet.

The ingenuity of our native fishermen has overcome this difficulty by the invention of a rather simple rig called a "jigger" (see diagram). A hole is cut in the ice and the jigger pushed under the ice and pointed in the direction in which the fisherman wishes to set his nets. A string attached to the jigger, marked "J" in the diagram, is pulled or pumped forward and backward and the jigger

moves along under the ice as far as is desired. Referring to the diagram it will be seen that bar "D", which is made of iron, falls into a vertical position by its own weight and when it is pulled upward by the action of the fisherman who holds the end of the control rope "J", the bar "I" with a spike on the end comes up against the ice and the force of this impact drives the jigger forward.

When the ice becomes thick and is covered with snow it may be somewhat difficult to follow closely the direction and exact location of the jigger. On more recent makes this has been overcome by attaching a hammer that taps on a steel plate and makes a bell-like sound which can be heard without difficulty by the fishermen.

In winter, fishing nets are not lifted daily; usually not oftener than every third day. In order to protect themselves from the winter winds, fishermen sometimes erect a canvas screen around the water hole. After removing from the net the fish are dressed or left round depending on market requirements. The fish freeze soon after coming out of the water and are marketed in this condition. They are usually packed in wooden boxes immediately after they are frozen. As soon as it is convenient the fish are hauled back to the camp or placed at a general assembling centre for subsequent delivery to railheads.

TRANSPORTATION

Freighting of frozen fish from remote areas is generally handled by regular freighting outfits. These outfits have an equipment of cabooses and snowplows - one caboose and one snowplow for

each outfit. Usually an outfit consists of nine to eleven teams and freighting sleds - one to two teams on the snowplow which leads the procession and clears off the snow down to the bare ice. In this way each team is capable of hauling a load of 10 ton or from 150 to 175 boxes of fish, each containing about 110 pounds of fish, the box itself weighing 20 pounds. The caboose is a combination sleeping, eating and cooking accomodation for the men. It also acts as a night shelter for the horses. For this purpose it is equipped with a canvas awning on all sides. While the caravan is in motion the canvas is rolled up and at nights extended and tented so as to cover and give adequate shelter to the horses. (See picture of freighting outfit taken on river at Riverton). The caboose is set for the horses as in use for stabling.

In the last year or two caterpillar tractors have come into use on Lake Winnipeg replacing horses to a considerable extent, each tractor hauling two or three sleighs and each sleigh loaded with from 160 to 200 boxes. This is a two, or at the most, a three man outfit, and unless weather prevents they travel night and day between fishing camps and home base or railhead. The tractor is fitted with a snowplow in front , and one of the fish carrying sleighs has a small built-in compartment in the front with sleeping bunks and necessary cooking accomodation. A horse drawn freighting outfit will not average more than twenty-two to twenty-five miles in a day, while the tractor outfit will make considerably faster time depending on ice and snow conditions. When fishing is carried on at relatively short distances from rail shipping points, fishermen use their own farm horses in transportation.

PRODUCTION OF FRESH FISH IN WINTER

The fresh fish business is a development of the last ten or twelve years. At one time it was thought to be almost impossible to keep fish from freezing, but the fishermen have now adopted a plan which seems to have surmounted the difficulty and is proving quite satisfactory.

The fish are packed in paper lined boxes between layers of ice. For conveying fresh fish from distant camps a heated caboose is generally used. These cabooses are large, commodious affairs, completely covered in and supplied with a small heater. The heater keeps the fish from freezing, yet it does not cause an undue depletion of the ice or endanger the condition of the fish. In this way the fish are moved safely to the shipping point. There the fish are re-packed, loaded into refrigerator cars and consigned to their final destination.

On the smaller lakes local storekeepers and transient buyers somtimes receive the fish from the producers and bill it out to one or other of the exporters in the province, or to fish receivers on American markets. Winter fishing is conducted on a much smaller scale, there are fewer hired labourers, and, in proportion to the catch, there is usually a greater degree of absolute ownership. Twine, fishing gear and provisions are often supplied by the storekeepers, on the understanding that the cost will be deducted from the proceeds of the fish as they are received and sold. As a rule the local dealer charges a cent or a cent and a half a pound for the services performed.

THE FISHERMAN

The most apt description of the fisherman in Manitoba is that he is a labourer working for a piece rate wage. He is, of course, a producer in the true sense as any other labourer or person who creates value. But he is not a producer in the sense that a farmer is a producer who owns his land and equipment and combines these along with his managerial skill in the organization of a business.

Some fishermen are able to do their own financing but this is by no means characteristic, particularly with regard to open water fishing in summer and fall. A fisherman or group of fishermen contemplating the operation of open water fishing are faced with the necessity of equipping and operating not only boats and fishing gear, but fishing stations where ice has been stored, and must purchase in advance certain essential supplies. Arrangements must also be made for the transportation of the fish from the point of primary production to the nearest railhead.

For all practical purposes the local packer or exporter provides the only source of credit available to the fisherman. Since the open-water fisherman through necessity and circumstances must look to others to outfit him and his crew and supply him with the necessary lake trasnport service, he is bound to sell his fish to these agencies. This is one of the reasons, though not the most important, why the number of fishermen and fishermen's licenses in the winter time is greater than in the summer. As we have indicated earlier, winter fishing on remote areas of Lake Winnipeg, and certain areas on Lake Winnipegosis, demands dependence on

packer or company boats to take boxes and supplies up the lake before the ice forms, and this again places him under an obligation to those who are able to permit him to perform his winter fishing.

It cannot be said, however, that this system is altogether disadvantageous, for, as a matter of fact, there are many features to commend it. In the first place, the production of fish is placed in the hands of competent and experienced fish distributing companies. In the second place, if they did not provide for transportation and fish-camp equipment, fishing operations would be confined to the very limited areas around the shore lines of the lakes. It also permits fishermen without capital, and most of them are without capital, to operate their own fishing units, and extends to the man with a small outfit practically the same chances of success as to the man with a large one.

However, it can hardly be said that the fisherman under these conditions is a free agent. Fishing is not so skilled an occupation that the available supply of fishermen is not adequate to the demand. As a matter of fact, there are always fishermen waiting to be taken on by the operators. This fact, combined with his inability to sell his own fish, has induced, from time to time, attitudes of discontent and suspicion towards the organization of the industry.

At various times in Manitoba and elsewhere fishermen have attempted to organize to protect their own rights and advance their interests in the marketing of their product. For reasons, some of which have been implied above, these attempts have not proven very successful. Some aspects of fishermens' organizations will be discussed in the last chapter.

FISH HATCHERIES

At the present time the Department of Natural Resources of the Provincial Government operates four fish hatcheries in the province. Of this number one is a whitefish hatchery at Dauphin River on Lake Winnipeg, and the other three are pickerel hatcheries, two of which are on Lake Manitoba and the other on Lake Winnipegosis.

At the beginning of the century the depletion of whitefish was becoming more or less evident in some of the earlier fished waters. The first hatchery in the province was established by the Dominion Government at Selkirk in 1894. While the major operations of this hatchery had to do with the propagation of whitefish, pickerel were hatched and distributed when eggs were available. In 1907 a hatchery was established at Berens River, Lake Winnipeg. A hatchery at Snake Island, Lake Winnipegosis was established in 1910, and in 1914 a hatchery was established at Gull Harbor and another at Dauphin River, Lake Winnipeg. A pickerel hatchery was built at Swan Creek on Lake Manitoba in 1928, and in 1936 a whitefish hatchery was established at Dauphin River, Lake Winnipeg, to replace the old hatchery destroyed by fire some ten years previously. In the same year a pickerel hatchery to serve Lake Manitoba was built and operated at Ebb and Flow Narrows, and one at Duck Bay to serve Lake Winnipegosis.

COST OF PRODUCING FISH

It is almost impossible to arrive at a figure which would represent the average or typical cost of producing fish. It is, of course, possible, and we present such data in this report, to

TABLE 5: FISHING COSTS

Cost of Summer Fishing, 1937

Lake Winnipegosis

30 nets @$20.00 (16" mesh, 60 fathoms)	$ 600.00
Rent or upkeep	20.00
Rent of gasoline boat for 1 1/2 months	60.00
License	20.00
Fuel for boat, 160 gallons @ 29¢ a gallon (tax deducted)	46.00
Wages of first helper @ $60 per month for 1 1/2 months	90.00
Wages of two second helpers @ $40. per mth. for 1 1/2 months	120.00
Board for 4 men for 45 days @ $1.00 per day per man	180.00
Incidental expenses	25.00
	1,161.00
Less recovery value of nets 33% of original value $600.	200.00
	$ 961.00

Cost of Summer Fishing 1937

Lake Winnipeg

33 nets @ $20.00 (60 fathoms long)	660.00
Gas and oil	150.00
Rent of corks and leads	20.00
Rent of gas boat for season (100 to 125)	115.00
License	25.00
Wages of the first helper @ $65. for 2 mths	130.00
Wages of 2nd and 3rd helper @ $50 " " "	200.00
Board for 4 men at the rate of $1.00 per day per man for 60 days each	240.00
Allowance for sundries & miscellaneous items of equipment	25.00
	1,540.00
Less 25% value left in nets ($660)	165.00
	$1,375.00

Cost of Winter Fishing 1937

Manitoba Lakes

4000 yds of netting material, together with the necessary lines and cut to suit local requirements, approximately	$ 390.00
1500 cords and leads for same	125.00
2 Licenses	20.00
Wages of second man @ $40 a mth for 4 mths	160.00
Board for 2 men - 120 days @ $1.00 a day per man	240.00
Rental value of horse and sled together with cost of maintenance	100.00
Clothing, etc.	25.00

TABLE 5: FISHING COSTS (cont'd)

Manitoba Lakes (cont'd)	Forward	$ 1,060.00
Miscellaneous expenses, including chisels, axes, camp utensils, etc.		120.00
		1,180.00
Less recovery value of nets 1/3 of original value	$130.00	
Less 4/5 value of corks & leads	100.00	230.00
		$ 950.00

indicate what are the costs involved in operating a fishing outfit. However, the cost per pound of fish produced is so much dependent upon the vagaries of fish runs and weather that any single estimate of cost is beyond the realm of even the most modest claims for accuracy. There are also wide variations in the amount and kinds of nets used and the experience and ability of the operator is an intangible factor which it is impossible to measure and these factors may increase or diminish the fisherman's chances of success.

In our calculations we have to make certain arbitrary assumptions. For instance, we say with respect to winter fishing that a typical two-man outfit uses 4,000 yards of netting material. As a matter of fact, any one outfit may use considerably more or much less than is indicated in our figures. The summer fishing period on Lake Winnipeg extends from the second Monday in June to the first Saturday in August. There is no summer fishing on Lake Winnipegosis, so that the comparison of open-water fishing is made with what is termed fall fishing which opens generally about the last Monday in July. Gasoline boats are used on Lake Winnipegosis but are not used on Lake Winnipeg in fall pickerel fishing. Since the season is somewhat shorter on Lake Winnipegosis the recovery value of the nets is estimated at a proportionately higher figure.

The data on cost of winter fishing are supposed to be representative for these operations on all of the lakes. It is merely representative and may be criticized on comparison with accurate data from any one outfit. However, we feel that the essential data have been included and that the total represents

a more or less average figure of the cost of winter fishing operations per typical outfit.

FISHING REGULATIONS

The first regulation of which we have any record concerning the fishing waters which are now included in the province of Manitoba appeared in the year 1865. At that time the Governor and Council of Assiniboia received a petition signed by 180 citizens drawing attention to the fishing conditions in the Red and Assiniboine rivers. It was contended by the petitioners that too many barriers were erected in the rivers which caused the destruction of fish. As a result of this petition there was passed on May 30th of that year an order which read as follows:

> "It shall be unlawful to erect any weirs or barriers in any part of the Red or Assiniboine, and on receiving information of the existence of any such weirs or barriers, any magistrate shall be empowered after July 1st to order any constable to remove the same".

In 1873 the North-West Council by resolution expressed the following opinion:

> "The time has arrived when steps should be taken to prevent a serious diminution of the supply of whitefish".

During the sessions of the Dominion Parliament in 1873-74 the Dominion Fisheries Act was extended to the prairie area as well as to British Columbia and Prince Edward Island. As these regulations had developed largely out of salt water fishing they did not prove well adapted to fishing in fresh water. In 1887 the license system was adopted but it was not until 1890, when the Superintendent of Fish Culture for the Dominion Government made an inquiry into the alleged depletion of whitefish, that any real attempt

TABLE 6: - FISHING REGULATIONS 1937

Fishing Area	Season	Species	Open Period	Maximum Quantity Allowed in Pounds	Kind of License & Price	Number of yards of net	Minimum size of mesh
Lake Winnipeg	Summer	Whitefish	Second Monday in June to first Saturday in August	3,000,000	Motor boat $25.00		5¼"
		Catfish	Second Monday in June to October 31st		License fee $3.00		5¼"
		Sturgeon	June 15th to first Saturday in August	Limit 100,000	License fee $5.00	500 yds.	not less than 12"
	Fall	Pickerel	August 16 to November 10. Catfish Pt. to Cathead		$7.50	1500 yds.	4¼"
	Winter	Pickerel	November 11 to second Saturday in March south of a line from Catfish Pt. to Cathead		Fisher Bay		4¼"
		Goldeyes & Jackfish					3"
		Saugers	(Portion of Lake open) South of a line from Catfish Pt. to Cathead, excepting Fisher Bay				4¼"
							3 1/2 to 3¼"
Lake Winnipegosis	Fall	Pickerel	Last Monday in July to second Saturday in September	1,000,000# Pickerel & Whitefish	Motor boat- Skiff $20.-$7.50	5000 1500	4¼"
	Winter	Whitefish	November 11 on ice to March 15th	None	$10.00	2000	5¼"
		Pickerel	Same as above	None	$10.00	2000	4¼"
Lake Manitoba	Winter Only	Whitefish	November 11 on ice to March 15		$10.00	2000	5¼"
		Pickerel, Jackfish & Tullibee	Same as above		$10.00	2000	3¾"-4"

TABLE 6: FISHING REGULATIONS, 1937 (cont'd)

Fishing Area	Season	Species	Open Period	Maximum Quantity Allowed in Pounds	Kind of License & Price	Number of yds. of Net	Minimum size of Mesh
Waterhen Lake	Winter only	Whitefish	November 11 on ice to March 15th		Whitefish $5.	1000	$5\frac{1}{4}$"
		Pickerel	Same as above		Pickerel $5.	1000	4 - $4\frac{1}{4}$"
Lake St.Martin	Winter Only	Whitefish Pickerel, Jackfish or Coarse Fish	Fourth Monday in November to second Saturday in March		$5.00	1000	$5\frac{1}{4}$"
			Same as above		$5.00	1000	$3\frac{3}{4}$" -$4\frac{1}{4}$"
Lake Dauphin	Winter	Pickerel, Jackfish & Coarse Fish	November 15 to January 31	Limit 400,000	$5.00	1000	4" -$4\frac{1}{4}$"
Moose Lake	Summer	No species specified	Second Monday in July to September 15th	75,000	$7.50	1500	$5\frac{1}{4}$"
	Winter	Same as above	Third Monday in November to second Saturday in March	200,000	$10.00	2000	$5\frac{1}{4}$"
Red River	Winter	Jackfish & Grass Pike	Same as above		$ 2.00	500	$3\frac{3}{4}$"
Buffalo Bay		Pound nets shall not be set nearer the side of the mouth of any stream than 500 yards and pound nets must be situated 50 feet apart. Cost of license $15.00					

was made to draw up a set of regulations which would be applicable and practicable in fresh water fishing areas of the western territory. These regulations remained in force until 1907 when they were again revised.

The revisions of 1907 were evidently not satisfactory for we find that in the year 1909 the Dominion Government appointed a special Royal Commission to investigate Manitoba fisheries. Mr. Edward E. Prince of Ottawa was Chairman of the Commission and Mr. D.F.Reid of Selkirk and Mr. J.B.Hugg of Winnipeg were the other members. They carried out a very exhaustive and extensive investigation of the fishing industry of this province and reported their findings in 1911.

The recommendations of this Commission were incorporated into a new set of regulations which are the basis with slight modifications of the fishing regulations now in force. However, one of the most important recommendations of the Prince Commission has never been completely put into operation. At that time the Commissioners were aware of the possibilities of serious depletion in whitefish production. Their specific recommendation in this connection was that the size of the mesh for whitefish was to start at $5\frac{1}{4}$ inches and then to be progressively stepped up to $5\frac{1}{2}$, and finally remain at $5\frac{3}{4}$ inches. The purpose of this recommendation was, of course, to prevent the catching of immature fish which had not been permitted to make their contribution to the future fish supply through spawning. For some reason or other these recommendations were never fully accepted, and, while conjecture is often a fruitless occupation, one cannot help wonder-

ing just what would be the condition of whitefish production in Manitoba if these recommendations had been enforced. The legal mesh was increased to $5\frac{1}{2}$ inches and remained there until 1919 when it was reduced to $5\frac{1}{4}$ inches.

The most important sections of fish regulations have to do with:

1. Size of nets
2. Dates of opening and closing of fishing season
3. Limitations on the size of the catch

CHAPTER IV

TRENDS IN PRODUCTION AND MARKETING

Total Production.- Statistically speaking there does not appear to be any definite trend towards a decreasing total production of fish in Manitoba. Depletion of certain varieties and decreasing production in certain lakes is, however, more noticeable.

TABLE 7

PRODUCTION DATA - 1921 - 1937
Licenses, Boats, Men and Production

Year	Winter License	Summer Boats	Summer Men	Total Production
1921	1045	469	692	182,703
1922	1173	532	760	165,421
1923	1469	633	890	154,109
1924	1731	720	929	177,928
1925	1917	917	1307	191,354
1926	2230	999	1395	304,143
1927	2390	1058	1530	322,908
1928	2440	1056	1575	307,326
1929	2830	1334	1663	331,218
1930	3213	1127	1382	238,868
1931	2454	702	864	189,597
1932	2025	544	730	183,891
1933	1759	681	948	198,913
1934	1683	834	1228	234,550
1935	1753	858	1384	196,559
1936	2008	925	1460	262,827
1937	2293	930	1417	284,412

It will be observed from a study of Table 8, that significant variations in the amount caught occur from year to year. It might have been thought by some in 1933 that production was definitely downward but this condition was somewhat similar to what took place ten years previously and the upswing reappeared just ten years after the heavy catches of 1926 and 1927. The data suggest some sort of productive cycle but the evidence of such is too scant to provide scientific proof. Other known factors are of some significance.

TABLE 8: FISH PRODUCTION - PROVINCE OF MANITOBA 1921-1937

Year		Pickerel	Pike	Saugers	Tullibee	Whitefish	Other Varieties	Total
1921	Quantity, lbs.	3,863,400	2,180,100	81,500	5,788,200	5,069,600	1,287,500	18,270,300
	Value landed $	183,063	48,596	1,697	179,620	299,690	48,696	761,362
	Value marketed $	221,697	61,134	2,426	185,762	473,552	64,615	1,009,186
1922	Quantity, lbs.	5,417,500	2,127,200	13,200	4,151,100	3,663,200	1,170,600	16,242,800
	Value landed $	282,716	51,236	265	103,931	168,884	52,082	659,114
	Value marketed $	355,216	70,243	397	133,024	268,084	73,013	899,977
1923	Quantity, lbs.	6,809,600	2,410,300	164,800	1,895,200	2,549,100	1,581,900	15,410,900
	Value landed $	347,376	62,858	4,932	79,656	139,311	108,537	810,362
	Value marketed $	484,982	89,734	6,592	98,279	181,459	144,758	1,005,804
1924	Quantity, lbs.	6,248,600	3,031,400	138,700	3,436,300	2,790,400	2,147,400	17,792,800
	Value landed $	396,411	76,929	5,131	100,642	175,651	134,262	889,026
	Value marketed $	528,426	104,973	7,407	125,258	265,078	194,834	1,225,976
1925	Quantity, lbs.	4,895,300	2,730,500	54,500	5,062,800	3,807,600	2,584,500	19,135,400
	Value landed $	450,445	86,135	2,494	157,846	226,640	139,411	1,062,971
	Value marketed $	563,281	110,222	3,257	207,622	361,849	181,176	1,427,407
1926	Quantity, lbs.	8,725,100	4,346,700	152,700	8,510,300	5,412,200	3,268,800	30,415,800
	Value landed $	746,022	132,162	4,714	381,891	317,411	163,557	1,745,757
	Value marketed $	900,596	177,425	6,005	500,422	490,625	223,953	2,299,028
1927	Quantity, lbs.	9,981,300	4,016,600	246,100	10,238,700	4,911,400	2,897,600	32,291,700
	Value landed $	636,070	105,726	10,937	305,744	277,575	126,300	1,462,352
	Value marketed $	804,854	149,656	13,248	415,678	419,071	173,307	1,976,816
1928	Quantity, lbs.	10,167,000	3,637,100	410,400	8,906,800	4,989,900	2,601,400	30,732,600
	Value landed $	712,829	111,666	22,731	347,710	324,014	102,034	1,620,986
	Value marketed $	921,010	154,550	28,795	480,159	473,232	131,281	2,189,027

TABLE 8: FISH PRODUCTION - PROVINCE OF MANITOBA - 1921-1937 (cont'd)

Year		Pickerel	Pike	Saugers	Tullibee	Whitefish	Other Varieties	Total
1929	Quantity, lbs.	9,405,500	5,491,900	610,100	6,404,300	5,690,300	3,111,700	33,121,800
	Value landed $	757,477	173,003	49,795	491,256	447,016	120,048	2,038,597
	Value marketed $	930,563	225,277	63,478	506,655	616,604	154,128	2,634,705
1930	Quantity, lbs.	7,220,500	3,079,500	896,100	4,749,900	6,130,200	1,794,600	23,866,800
	Value landed $	401,536	62,121	46,074	306,278	423,935	74,164	1,376,108
	Value marketed $	609,510	67,244	62,472	369,674	536,151	95,344	1,760,395
1931	Quantity, lbs.	5,759,900	2,165,500	1,627,900	2,772,900	5,321,000	1,112,500	18,959,700
	Value landed $	367,734	36,093	60,920	81,714	307,531	53,028	907,720
	Value marketed $	480,240	50,630	74,194	104,746	439,205	67,599	1,224,614
1932	Quantity, lbs.	5,527,300	1,555,500	1,694,200	2,679,700	5,381,900	1,350,200	18,389,100
	Value landed $	331,205	32,320	76,574	77,928	297,991	41,363	857,401
	Value marketed $	428,273	45,771	105,404	97,406	454,234	54,003	1,185,091
1933	Quantity, lbs.	6,697,400	1,478,500	2,481,400	1,812,600	6,140,000	1,872,200	20, 692,100
	Value landed $	256,380	12,736	77,993	32,412	303,677	41,896	725,294
	Value marketed $	352,653	20,916	115,635	43,641	434,816	63,231	1,060,892
1934	Quantity, lbs.	6,344,000	1,049,200	4,669,500	2,910,800	4,896,800	1,383,900	23,455,000
	Value landed $	366,630	16,713	172,199	58,096	282,586	65,591	965,815
	Value marketed $	553,504	31,469	242,669	97,146	422,674	92,255	1,439,957
1935	Quantity, lbs.	7,216,300	1,399,600	3,504,400	2,212,800	3,787,800	1,533,000	19,655,900
	Value landed $	371,093	37,239	127,231	71,733	254,781	58,242	920,319
	Value marketed $	498,958	50,313	155,975	92,027	376,121	72,995	1,246,369
1936	Quantity, lbs.	10,505,400	2,433,200	4,771,100	3,833,100	2,127,500	2,612,400	26,282,700
	Value landed $	570,654	65,425	203,731	125,459	174,940	121,774	1,261,983
	Value marketed $	757,243	98,073	263,579	156,570	219,498	159,970	1,654,922
1937	Quantity, lbs.	10,409,500	2,398,400	3,267,600	1,700,000	3,230,100	2,435,600	23,441,200
	Value landed $	530,278	71,571	325,602	51,534	276,664	117,141	1,372,990
	Value marketed $	715,107	97,651	377,364	63,299	373,275	141,887	1,769,383

The rather extreme fluctuations which occur from year to year tend to obscure the actual trends in production. In order to remove the effect of single year extreme changes, which may be partially influonced by favorable or unfavorable weather and to provide a means of revealing, though somewhat inadequately, the apparent trend, we have constructed a three year moving average (centred on the mid-year) of the data on production since 1921. (The figure shown below for 1922 is the average of 1921, 1922,1923. For 1923, the production of 1921 is dropped and 1924 included, and so on).

TABLE 9

TREND OF TOTAL FISH PRODUCTION
(moving average, 1921 -1936)

1922	16,641,000 pounds
1923	16,482,000 "
1924	17,446,000 "
1925	22,448,000 "
1926	27,281,000 "
1927	31,147,000 "
1928	32,049,000 "
1929	29,247,000 "
1930	25,323,000 "
1931	20,412,000 "
1932	19,347,000 "
1933	20,845,000 "
1934	21,268,000 "
1935	23,131,000 "
1936	24,793,000 "

The above data along with trends in varietal production is graphically portrayed in Chart 1. The peak of production for the past fifteen years is centred on the year 1928. Now, if this large increase was caused, as it might well be, by the change to more intensive fishing methods, which got under way at this time, then certain questions as to present and future production arise. Does the decline from 1928 to 1932 indicate a wearing-off of the effects of greater efficiency in fishing? In other words were

there biological reasons for the increase in fish production from 1924 to 1928, or was it merely technological improvement in hunting methods which caused more fish to be caught? If it is the latter then the relative decline in recent years may be more or less permanent, for, if the parent stock was seriously depleted by the catch during the peak years the trend may be definitely downward in a few years.

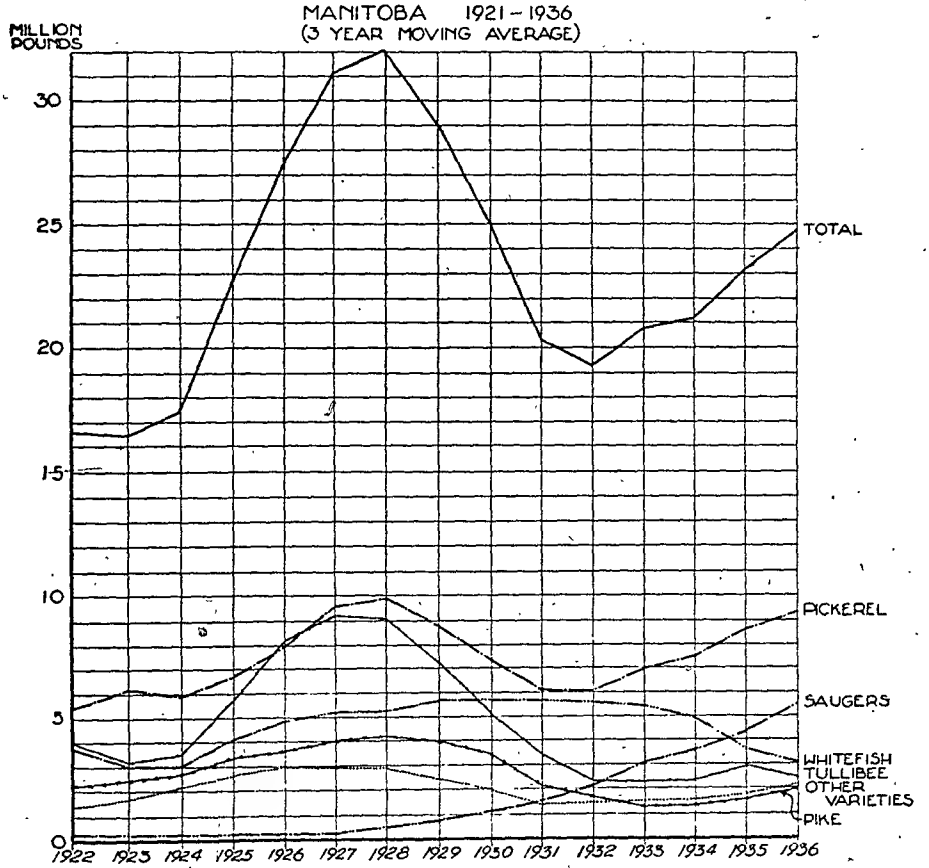
Within the limits of our present knowledge, almost any interpretation of production trends is open to challenge. The emergence, within the next ten years, of another period of high production, such as is shown on the chart, should prove conclusively, in the absence of further changes in production methods, that the fluctuations of production are largely biological in nature.

TRENDS IN VARIETAL PRODUCTION

Significant changes have taken place in the production of certain varieties of fish in Manitoba. The most important concerns whitefish. The peak of production in the last twenty years was in 1918 at slightly over seven million pounds. A definite decline set in to 1923 when the catch was only 2.5 million pounds. Since that year production increased up to 1933 and has since declined. In 1937, 3,230,100 pounds of whitefish were caught. The largest catches were in 1930 and 1933 which consisted of slightly over six million pounds. (See Table 8). From 1926 to 1934 production averaged over five millions. It is difficult to say whether or not production is definitely decreasing. The peak catch of 1933 would seem to indicate that there is no actual exhaustion. If the gross poundage of catch is being kept up by catching more but smaller fish the

TREND OF FISH PRODUCTION

MANITOBA 1921 – 1936
(3 YEAR MOVING AVERAGE)



supply should continue to decrease, or, if 1936 and 1937 were just 'poor years' as some fishermen claim, the cycle will repeat itself and good catches return. It appears certain, however, that whitefish production on Lakes Manitoba and Winnipegosis has most definitely declined. There seems to be little or no hope of maintaining commercial whitefish production at any significant level of importance on these lakes. Maintenance and increase might be possible if a sanctuary could be established on suitable feeding grounds, or if fishing could be confined to the use of nets only of the full size for whitefish. But both of these suggestions are impossible to enact. The physical nature of these lakes does not lend itself to segregated areas and the prohibition of nets smaller than $5\frac{1}{4}$ inches would mean prohibition of pickerel fishing, which, considering the relative importance of this fish, would be economically unsound. Under such conditions it is not an exaggeration to say that commercial whitefish operations are doomed on these lakes.

Conditions are somewhat different on Lake Winnipeg. Even though there is greater variation in the size of nets used on this lake it has been found possible and expedient to create a sanctuary. Fully two-thirds of the water area is set aside solely for whitefish fishing with limitations as to the total seasonal catch and for a period limited to about eight weeks. These regulations, together with successful hatchery operations, may again re-establish the pre-eminence of whitefish.

We have referred previously to the recommendations of the Fish Commission of nearly thirty years ago. It was suggested then

that the limit on whitefish production on Lake Winnipeg be set at 2½ million pounds and this became effective and in force until 1918 when under the so-called necessities of war conditions the limit was raised to 3 million. It has remained thus to date.

If the lesser amount was a necessary conservation effort thirty years ago under much less intensive methods of fishing it would appear ample under present conditions. Within the past ten years the use of gas power as opposed to sail has permitted a wide and intensive hunt for fish and this may be one reason for the decline in production.

As far as winter production of whitefish is shown on the tables presented in this report the decrease is accounted for by the regulations made operative in October 1936, which prohibited winter whitefish operations.

The apparent maintenance of whitefish production in the northern lakes may be attributed to measures enforced by the fisheries administration. A strict limit was placed on every lake as it was opened for commercial fishing. More important, however, is the fact that no net of less than 5½ inch mesh has ever been permitted by law in these fishing waters.

Pickerel,- Since 1922, and excepting the season of 1932 when the pickerel and whitefish caught were about equal in quantity, pickerel is the main variety caught in Manitoba. There does not appear to be any marked decline in pickerel production for the province as a whole. The peak catch was in 1928 when slightly over 10 million pounds were produced. In 1937 when whitefish production was so markedly low the pickerel catch was also low, being reduced by about one-half from the high of 1928, while whitefish declined in the same year to only one-fifth of the peak in 1933.

Year-to-year variations in the run of pickerel are as observable as in the case of whitefish. The occurrence of the cyclical movements are, however, not always co-existent with the movement in whitefish production. In the last fifteen years, during six seasons, increases or decreases of both varieties appeared simultaneously to a more or less relative degree. During the other nine years the movements were of an inverse order. The smoothed curve of production shown in Chart 1 indicates this relationship more clearly.

Saugers,- In 1922, there were only 13,000 pounds of saugers produced in Manitoba. By 1932 production had increased to around two million pounds and in 1934 to nearly five million pounds. Such a phenomenal change demands more than passing attention.

The increasing importance of saugers is largely confined to winter production on Lakes Winnipeg and Manitoba. For example: In 1927 summer caught saugers on Lake Winnipeg amounted to fifty thousand pounds which increased to about one million in 1937. During the same period winter production increased from 172 thousand pounds to 5.5 million pounds.

On Lake Manitoba (winter production only) the increase was from 21 thousand to 1.8 million pounds.

Several reasons may be advanced for the increase in sauger production. In 1930 the market outlet for tullibees was seriously limited by the United States embargo against this variety. As a result various means are used by fishermen to avoid the catching of tullibees. For example, this fish is known to run usually near the bottom of the lake so the nets are set high enough to clear the main run.

Or in channels, Tullibees keep to the centre so, while the run is on, nets are set in bays where the saugers are more likely to be caught.

Another factor is that in 1930 the size of mesh was reduced from $3\frac{1}{2}$ inches, which permitted most of the saugers to escape, to $3\frac{1}{4}$ inches which entraps them. Also, the prohibition in recent years of spring fishing (spawning season) for pickerel has no doubt induced greater production of saugers as it has for pickerel. Perhaps another reason is that the nets used for tullibee fishing were of such a quality that few saugers were caught. Since 1930 fishermen have been using the best twine possible; namely 60/6-70/6 and even 80/6 - 90/6 netting which produces a paying catch.

Men of wide experience in the industry contend that saugers were always in abundance but now that around 700 fishermen depend mainly on saugers for their winter production saugers will maintain their present importance as long as the supply is not depleted. Whether or not the supply is being depleted is difficult to determine. Evidence of depletion is not lacking. Inspectors are seizing nets of $2\frac{1}{4}$, $2\frac{1}{2}$, 2 5/8, $2\frac{3}{4}$ and 2 7/8 inch mesh, which seems to indicate that many of the saugers which are left are so small that legal size nets (3 1/8 inch) will not catch them.

<u>Tullibees.</u>- An important reason for the decline from the 1928 peak of total production shown in Table 1, and which we purposely omitted in our discussion of the general trend must now be included. The tullibee situation has many ramifications which affect several important aspects of the industry.

As tullibees are no longer fished for in commercial quantities their numbers tend to increase and as their feeding habits are similar to whitefish they compete more strenuously with whitefish, for the available food supply. This unbalancing of the forces of nature may perhaps be one cause of the decline in whitefish.

Other varieties,- A slight but observable tendency to increase perch production is probably attributable to the smaller mesh nets used in both Lakes Winnipeg and Manitoba. Mullets (suckers) were always in the lakes and taken as market conditions warranted. Of recent years there appears to have been reasonable markets during the spring run when the season is closed to other varieties.

The use of 3½" to 3¼" mesh nets, and more recently 3 1/8" and 3", for tullibees and saugers has no doubt reflected unfavorably on the potentialities of goldeye reproduction. Another reason is that the goldeye "grounds" are for one reason or another rather limited by nature. The impetus behind increased sauger production has caused increased fishing in those areas generally known to be most suitable for goldeyes.

TRENDS IN PRODUCTION METHODS

In earlier sections of this report we have had occasion to stress the nature and possible effects of changes in production equipment. Another change of considerable importance should be noted.

The Manitoba Fisheries Commission of 1933 investigated in some detail an alleged combine of fish companies and reported at

length on the control which American capital exercised in the production and marketing of Manitoba fish. Since that time there has been a significant decline in the relative importance of American controlled companies and a considerable extension in the operations of local interests. This refers particularly to summer fishing for whitefish and pickerel on Lake Winnipeg.

Winter fishing, for several obvious reasons, has never been subject to the same control by the companies, but on Lake Winnipeg where relatively large capital investment in stations and boats was necessary the fishermen and the independent producer used to be under such handicaps that fish production was in many respects monopolistic.

The less expensive, and equally, if not more satisfactory, diesel powered freighter has displaced the old steamers. Thus one strand of control was broken. Local operators have gradually acquired more capital and extended their operations. As the industry is now organized it consists of three groups of operators; the fisherman, the packer, and the exporter. The fisherman is still largely financed by the shipper or local packer. The shipper in some cases may also operate his own outfit but generally speaking the bulk of the fish he handles is purchased. He in turn sells to an exporter or the shipper may export himself if he has good trade connections in American markets.

There are nine important exporting firms operating in Manitoba. Four of them are strictly local companies, the remainder being

either subsidiaries of U.S.Companies or financed by American companies to a greater or less degree.

The tie-in between the exporter, shipper and fisherman is customarily very close. The exporter in some cases operates his own fishing stations and finances fishermen; or he may assist in financing a shipper who in turn finances the fishermen. In recent years there has been a decided tendency for the exporter to retire from direct producing activities. So marked has been this tendency that local shippers (Lake Winnipeg) have increased to the point where they have their own organization which can deal collectively with the fishermen, the exporters and the government.

MARKETING TRENDS

American markets continue to take about 90 per cent of Manitoba's production and thus most of the factors which effect conditions in Manitoba are a reflection of the market condition and general trade situation in the United States.

A few years back the depressed conditions in rural areas of the States restricted the demand for frozen fish. At the same time it was thought that the demand for summer caught whitefish, which was largely a smokers' demand, would increase. But the rural trade, for frozen fish has increased and the smoked fish demand has continued to be in the luxury class displaying little evidence of increase. The demand for saugers has kept up very well considering the increased supply. Perhaps the reason for this is that the winter-

frozen catch is sold in the large cities where they are filleted and sold as fresh fillets. As shall be indicated later the fillet trade is increasing.

One of the major problems faced in past years with regard to American markets was the unsatisfactory condition prevailing as to trade connections. Canadian exporters were often at the mercy of buyers in distant markets who used various devices to rig the market and minimize the amounts due shippers. Certain markets were controlled by racketeers; shipments were said to be of inferior quality and the shipper without a representative on the market was forced to take a cut bill; accounts were difficult to collect and in general the independent producer-shipper was a weak seller.

As noted previously, the independent producer has, in spite of difficulties, become a significant factor, and the prospective or actual buyer in American markets can no longer afford to treat such exporters with little regard for ethical business concepts if they, the buyers, are to obtain a steady supply of fish.

In 1936, the Department of Trade and Commerce (Ottawa) attempted to improve export sale conditions to the New York market. The Canadian Trade Commissioner's office in New York was instructed to provide credit ratings of fish buyers and assist in adjusting claims of Canadian fish exports. During the few months this service was provided, forty-seven Canadian exporters used the service involving disputed accounts of slightly over fifteen thousand dollars. It was not to be expected, except under emergency conditions, that a government office should maintain a service, which is clearly one

for the trade to provide for itself. The Department on discontinuing the service made a real but ineffectual effort to assist in organizing a bureau in New York which would provide the following:-

1. Crediting rating of fish buyers
2. Reports on current market conditions
3. Adjustment of complaints
4. Handling of claims

While the plan failed as far as Canadian exporters were concerned it has been put in operation by the Lake Michigan Producers who use the services of a private agency called the Fishery Service Bureau.

It is of importance to suggest some reasons why the plan was not adopted by Canadians. It is most difficult at all times to get unanimity of opinion amongst the individuals or companies who constitute what might be called a group-interest in the fishing industry. The plan suggested involved definite co-operation, not only within groups, but between groups; not only in a province, but between provinces. It was an impossible task.

Underlying these difficulties was a fairly well founded belief that the plan was impracticable. To illustrate: conceive a shipment sold at an agreed upon price to a buyer on Peck slip, New York. The buyer for some reason or other "missed the market" and when the fish arrived he is faced with a loss. The boxes are opened on Peck slip early in the morning and a host of jobbers and peddlers handle the fish. The New York buyer wires the Canadian exporter that the fish are of poor quality and says he will only pay a

"cut-bill". The exporter wires the New York Bureau to inspect the fish and protect the exporter's interests. During the time that elapses between the opening of the boxes in the early morning and the hour when the Bureau agent arrives, there is ample opportunity for an unscrupulous buyer to mix poor quality fish with the Canadian shipment in dispute. The inspector, at this time, can barely detect what is patently a fraud; and having to declare what he finds he provides what might be considered a legal excuse for the buyer. Anyone familiar with the Peck slip market will agree that this illustration is not an exaggeration. Many exporters, therefore, contend that while conditions are bad they would rather trust to their own devices and not provide a buyer with the opportunity of deceiving a third party whose decision would be final. The independent Canadian exporter is in a much stronger position, through experience, than he was five or ten years ago and has developed trade connections which can and will be maintained only by mutually acceptable and honest dealing. In brief, many Canadian exporters believe that the service of a Fish Bureau would be used to his disadvantage.

Marketing Costs and Prices

The purchaser of Manitoba fish if he is resident in New York bases his price offers on the following transportation and duty costs from Winnipeg (per 100 pounds)

Fresh Fish, car lot, net weight.
Express $4.01 duty .75
New York Cartage .05 Small additional charge for heater and customs brokerage.
Approximate total cost $4.81
Approximate L.C.L. cost $5.38

Frozen fish, car lots, 32,000 pounds minimum.

Freight $1.75 duty .75 Total $2.50

If the exporter is selling on commission the rate varies from 10 per cent in Chicago to 20 per cent in New York. As stated previously most of the exports are sold by outright purchase to American buyers. In practice such a buyer, armed with a knowledge of existing prices in his market area, and exercising prevision based on experience, estimates what he can sell the fish for at a profit, deducts the costs noted above and makes an offer to the Canadian exporter. It may appear therefore, as many believe, that the Canadian producer bears the costs of transportation and the duty. Or, put in another way, if the duty were lowered or removed the price received by Manitoba producers would be raised by the amount of the duty. The incidence of taxes, including tariff duties, are among the most involved problems of economic analysis. We have no desire, nor do we see the need of exploring this problem as it relates to the duty on fish, but we do wish to point out that it is possible to reach very erroneous conclusions by superficial examination of apparent effects. If the duty does not raise the price of fish in American markets it is of little advantage to American producers. Certainly a specific duty of 3/4¢ a pound does not keep out Canadian fish or permit any great price advantage to American producers. The burden

of the duty falls on producers or consumers according to whether supply or demand is the more important factor in any market situation. As to where the burden rests, there is no single answer which covers all conditions of the market and all varieties of fish. Sometimes a duty is imposed by a country to discourage production in foreign countries. There is no evidence that the United States duty on fresh-water fish has restricted or will restrict production in Canada. In brief, it is a nuisance, of small economic importance which might well be removed. If American interests sincerely believe that it affords protection it would be of greater value to have the Canadian Government levy an export tax of 3/4¢ and devote the revenue to the conservation of Canadian fishery resources. As it is now, with 90 per cent of our production going to the United States we are exploiting and perhaps exhausting our fish resources too largely for the satisfaction of American middlemen and consumers.

With regards to the prices of fish, the most significant feature is their extreme variability. Variation in weaker conditions and the "run" of fish make the supply most elastic. On the demand side, holidays and "fish days" make for a periodicity in market conditions which cause violent fluctuations in price.

An element of artificial or planned stability exists in prices paid to fishermen in Manitoba. The Department of Natural Resources, having set a limit for the whitefish catch on Lake Winnipeg during the summer, intervenes to arrive at a basic price

to be paid fishermen during the season. Winter prices for fresh fish are set each Monday, for the previous week's catch, Seven of the chief exporters combine to employ a secretary who compiles the necessary statistical data on which the price is fixed. Frozen fish prices fluctuate with the market although dealers try as much as is possible to keep them relatively stable as violent fluctuations demoralize the trade.

CHAPTER V

MAJOR PROBLEMS OF THE INDUSTRY AND SUGGESTIONS TOWARDS THEIR SOLUTION

The problems which result from a demand based on feast days and fast days will no doubt always remain to disturb the industry. Little, therefore, can be done which is not being done to meet this situation.

Market Information.- Much could be done and should be done to provide a broader and more accurate basis of market information. There always has been, and there is now, a woeful lack of adequate public information regarding the quantitative and qualitative aspects of demand in distant markets. There seems to be no reason why unbiased information could not be gathered daily with respect to prices, supply, and demand on the major markets of the United States. Naturally, Manitoba fish companies, which are branches of American concerns or Canadian companies in touch with their agents in the States, have information on the market situation, but until this information is gathered and broadcast by an unbiased authority the industry will always suffer from those conditions which come from a misunderstanding between the distributing companies and the fisherman as to the state of the market. There can be no adequate analysis of the forces which are affecting the industry unless such information is collected and analysed continuously, thus permitting objective appraisal of the trends and tendencies of the conditions affecting the industry from time to time and over a period of years.

Increasing Demand.- It has often been suggested that the problems of the fishing industry would be lessened to a large extent if

the demand for fish could be increased somehow or other. Such obvious statements are true, of course, of most primary commodities and indeed of all articles of commerce. It is another matter entirely, to suggest practicable means by which the per capita demand for any commodity can be increased. Attempts of this kind have been made in campaigns based on such slogans as "National Fish Week", and "Eat More Fish", but the results appear to be only of small and passing significance. It is generally recognized by students of marketing that attempts to create demand through such methods are successful only to the extent to which they appeal to patriotic sentiments, but that they have little effect in influencing gastronomic or economic habits. Better display methods in retail stores and demonstrations of preparing menus and the cookery of fish should be encouraged and supported.

A most significant development has occurred in the fishing industry recently which may affect the whole situation in Manitoba. An ever increasing amount of fish is being filleted, quick frozen and packaged for sale. This process eliminates many of the risks and difficulties that arise from the perishable nature of the product, and through the attractiveness of the package a very definite appeal to the eye is made which is very important in the purchasing of foodstuffs. An incidental but very important result of quick freezing will be the possibility of eliminating many of the market gluts of fresh fish. Some United States interests predict that within seven or eight years 70% of all the fresh-water fish produced will be filleted and packaged. If this is a true statement of fact, Manitoba must pay careful attention to these dynamic changes in order that the industry in this province may derive the fullest amount of

benefit therefrom. It is difficult to say as yet what effect quick freezing will have on the whole structure of the fish industry. In preceding sections of this report we have disclosed rigidities in the present structure of the industry and it has been suggested that this rigidity does not always work out to the benefit of Manitoba fishermen or the Manitoba fish industry in general. If the basic structure of the industry is altered fundamentally by the changes outlined above, it should be easier to make needed adjustments in the industry during a period of transition and not after the new methods have been firmly established and the old or new rigidities perpetuated.

THE PROBLEMS OF SUPPLY

There are two major problems of supply. First is the problem of the fisherman and his welfare; and second the problem of conservation.

The Fisherman ,- The problems of the fisherman and his welfare cannot, of course, be divorced from other aspects of the industry. Not only does the fisherman have problems but the fisherman individually and collectively is a problem to the industry. There is always a certain amount of conflict between those interested in the current supply, be they fishermen, shippers or exporters, and those whose duty it is to conserve the natural resource which is being exploited. None of the producing interests have vested rights in the industry. They apply their labour, skill and capital to the extraction or exhaustion of that which Nature has provided, or that which, to a growing extent, organized society maintains by artificial means.

Like any other labourer the fisherman has the right to protect himself from being exploited. As long as he remains an individualist he will be in danger of being exploited and he will tend to exploit the natural resource which provides him with a livelihood. It is in the interests, then, of not only the fisherman himself but of the industry as a whole that the fisherman should be organized. Organizations of fishermen have not been very successful. The reason for this lack of success is not hard to find. Most of the organizations which came into existence were based on impulsive resentment against the fish companies. Perhaps the price of fish was too low and the fishermen were discontented. A protest meeting was called and the fishermen within the limits of what coercive measures were at their disposal attempted to improve fish prices. But usually each fisherman who joins in such a protest movement is largely concerned with obtaining a higher price for himself at that particular time. No permanent and mutual group spirit emerges from organizations based on motives of diversity, individualism and self-interest. Trade unionism has deservedly grown to power and importance in almost every branch of the industry. There can be no valid criticism of the uses of such power to protect the weak and to develop amicable relationships within any industry. Misuse and abuse of power frequently occur and are to be deplored, but this is a characteristic not of any one group alone and no one will seriously contend that a balancing of economic and social forces is not a most desirable goal in modern society.

In recent years the condition of the primary producer has been

such as to demand the serious consideration of governments all over the world. With some commodities and in some countries prices have been arbitrarily fixed and production and marketing controls have been established. Co-operative effort has been encouraged by governments in various ways. Governments have set up special banking facilities to provide primary producers with funds for equipment or marketing purposes. Not all of these proposals are economically wise or sound, even if we admit the dire needs which call for their consideration, or the political expediency or philosophy which demands their enactment; but they do serve to indicate somewhat the trend of the times.

On the Pacific coast the fishermen have been unionized for many years and the fish buyers accept it as an established practice and they govern themselves accordingly.

Until very recently co-operative efforts amongst the deep sea fishermen in Nova Scotia did not make very much progress. The success of the inshore fishermen through their organization known as "The United Maritime Fishermen's Federation", is widely known. Through the encouragement provided by St. Francois Xavier University in Nova Scotia study clubs, co-operative and credit unions were established among the fishermen in many districts of the Maritime Provinces and are slowly but surely beginning to attain the position of independence and security. It is interesting to note at this point that the success of co-operative efforts in Nova Scotia amongst fishermen was established

on a broadly cultural base much similar to the co-operative enterprises in Scandinavian countries and it is sometimes a cause of wonder that, inasmuch as the fishermen of Manitoba belong to much the same ethnic group, co-operative effort has not progressed to the same degree.

As mentioned before the deep sea fishermen of Nova Scotia have never been very well organized. But recently they successfully managed a settlement with the fish buyers, after holding a strike. Briefly, the Federation demanded a 1/4 ¢ per pound increase in the price paid for cod and haddock and the maintenance of this increased rate for the months of January and February. The fish buyers rejected the demand and a complete tie-up of the schooner fleet was the result. A significant feature of this strike is that none of the skippers or fishermen were wage earners for they all depended for their livelihood on their share of the catch and it is stated that this is the first time in the history of the Atlantic coast deep sea fisheries that a concerted organized movement was made for a higher price for fish.

In Ontario the most successful organization of fishermen exists along the north shore of Lake Erie where the Lake Erie Fishermen's Association has been organized for twenty-three years. Strictly speaking, this Association is an organization of local producer-packers rather than actual fishermen. Nevertheless such an Association has a real place in the industry as reports of their last annual meeting indicate. The discussions and resolutions of this Association had to do with three major lines of endeavor affecting

the fishing industry. First and foremost at this time was the development of more efficient marketing methods; second was the production of higher quality fish; and third was a discussion of fishing regulations. The marketing committee appointed by the Association reported that they are firmly convinced that better control of production and out-put is the vital need of the industry. It was stated that the fishermen did not want a monopoly but they did want some regulation. For instance, it was shown that fishing conditions on one end of the Lake might be exceptionally good and on the other end conditions would be very unfavourable. Such conditions are said to call for an organization which would regulate the supply and prevent alternate market gluts and scarcity. In brief, the fishermen of Lake Erie wish the provisions of marketing legislation, which are applicable and in force with respect to the Ontario Tobacco Growers' Marketing Board and the Ontario Cheese Board, applied to the marketing of fish. Their proposal is to establish a central office where daily reports will be received from the fishing ports on catches and there information will be available at all times with respect to markets, demand, and prices. The purpose is to prevent, if possible, recurring distress markets and price cutting.

It has been suggested that one of the advantages of a fishermen's organization is the contribution that the fishermen can make by organized efforts in improving the quality of the product. The following quotation taken from a newspaper report of the annual meeting of the Lake Erie Fishermen's Association supports this contention. The quotation is as follows:

"We are not progressing in the preparation, packing

> and marketing of our product. We handle fish like a farmer does the refuse from his stables. Our fish are packed in filthy, unsanitary boxes and the one who is suffering most from this slovenliness is the fisherman himself. All the laws in the land cannot cure this evil. All the standards of regulation that may be set up will not remedy the situation as quickly as a group of men like there is here today can. All you have to say is that you are not going to accept those filthy old boxes and you will soon cure the evil. If we've got to pass laws every time we have to do something that should be done, something that it is in our best interests to do, then we shouldn't be here."

With respect to fishing regulations it is most desirable to have a fishermen's organization which can from time to time, and particularly at their annual meetings, discuss regulations and controls which are applied to their own industry. The Lake Erie Association provides further evidence of this fact. At the last meeting one of the fishermen made the charge that it was time fishing regulations were more rigidly enforced. He stated that thousands of feet of nets were still in the Lake because gill netters had attempted to stretch the season too far. The gill netters on the other hand accused the pound netters of breaking regulations. While charges and counter-charges of this kind may never settle anything, discussion of this kind does provide a basis for the democratic determination of controls which must be in force to safeguard the interests of the industry as a whole. The enforcement of fishing regulations must of necessity be in the nature of policing, but a strong fishermen's organization working in co-operation with the government should develop an attitude within the industry that considers regulations a necessity rather than a nuisance.

Conservation.- If a fisherman can be made to realize the necessity of regulations being designed to preserve the sources of supply, half

the battle of conservation is won. There remains, then, to consider the adequacy of those provisions which are made to maintain the fishing supply by means of artificial propagation through hatcheries. Statistics presented in this report appear to indicate that certain kinds of fish are undoubtedly being depleted. The wealth produced annually by our fisheries, while of relatively small importance compared with the annual income from all sources, is of very primary importance to many of our citizens. As approximately 90% of this production is shipped outside of the province and the larger part into the United States, it should be evident that all that remains to us of this annually produced wealth is the relatively small part which goes to make up the productive costs which have their situs of payment in Manitoba. On the other hand if we did not have the American market the industry would be in a bad way. The process of exporting this wealth to another country may seriously deplete its source, and eventually we will have given away the large part of our natural heritage. The production and export of oil, minerals and power raise somewhat similar problems. A province or a nation thus situated may rightfully consider some means of taxing this export of wealth in order to maintain undiminished the annual stream of income. The payment of licenses by fishermen and fish companies is supposed to provide, at least partially, the funds needed to conservethe original value of the resource. If larger amounts of money are needed for the conservation of our fish resources some of it should come from the consumer of the fish products and not alone from the pockets of the fishermen. The application of an export duty on all fresh water fish shipped out of Canada is worth consideration. Even though its practicability

may be challenged no possible solution to the conservation problem should be ignored.

There are objections, of course, to such an export tax. Unless a particular province has a monopoly over the production of a particular kind of fish, an export tax applied in one province would cause demand to shift to the products of another province. Federal legislation would no doubt have to be invoked in any case with respect to an export tax; unless such a tax were considered in the nature of a severance tax rather than an export duty. But there is no reason or evidence to indicate that the problems of depletion and exhaustion are not just as important in the other provinces of Canada and unified effort along this direction might be rather easy to obtain.

It may be argued that the application of an export duty would raise the price of Canadian fresh water fish to such an extent that it would not be able to compete with fresh water fish produced in the United States. As a matter of fact, there is more complaint in the United States from under-cutting of fish prices by Canadian companies than there is complaints that Canadian prices are held too high.(See report of annual meeting of The Lake Erie Fishermen's Association, 1937.) We cannot conceive, therefore, of a fraction of a cent export duty having any effect whatsoever on the competitive position of Canadian fresh water fish in the American market. Under present conditions it might prove impossible to reflect the tax to the fisherman so that he would have to bear it.

Prices paid to fishermen are usually at a bare minimum and a strong collective bargaining organization should at least be able to maintain this minimum if not improve it.

At any rate, the need for conservation is imperative enough, despite the oft repeated statement that the cycle of good years will return, to explore every means of providing for the maintenance of the fishing resources of the Province. Private gain has a legitimate place in the industry but it must at all times be subordinate to the interests of society as a whole. The long view must transcend and dominate short run gains and temporary conditions. We have been too prone in this new country to calculate and build on a theory of inexhaustible and ever-bountiful natural resources.

Somehow or other the industry must be made to provide funds for the replacement of the natural resource that is extracted annually and for the maintenance of future production. The actual fisherman can scarcely be blamed for his eagerness to concentrate on the quantity of his catch. By no stretch of the imagination can his renumeration be considered much more than a bare minimum. Paid on a pound basis he looks primarily to the income of a single season and kills as many fish as circumstances permit. The time may come when in the interests of social justice and conservation the commercial fishermen will be considered a more or less skilled laborer organized into a craft union and paid a daily wage. When, and if, this occurs licenses could be limited and all aspects of

regulation more adequately enforced. However, conditions at present do not suggest that the cost of the fishing license could or should be increased to provide revenue for conservation purposes.

Tullibees.- Closely linked with the general problem of conservation is the tullibee situation. If either or both of these problems would yield in a relatively easy way to investigation and earnest effort the Department of Natural Resources would have solved them before now. Within the means at their disposal officers of the Department have explored every avenue of possible solution to the embargo on tullibees. The embargo is based on the psychological grounds that "the aesthetic sense" of consumers is offended. The relationship between aesthetic sense, health and pure food is difficult to conceive. But the conception exists in the Department of Health of the United States Government and as long as it so remains tullibees will remain in our Lakes and their great economic importance to the industry and the Province destroyed.

THE PROBLEMS OF QUALITY AND REGULATION OF PRODUCTION

The two most important problems that face the industry are the maintenance of quality and the regulation of production. We hope to show that they are inextricably woven together and as a whole comprehend many of the difficulties mentioned previously,- even the problem of conservation.

The quality problem has nowhere been better stated than in the following circular distributed by the trade last winter.

"The very unsatisfactory quality of Lake Winnipeg fish produced during the last winter season did great injury to the market for Lake Winnipeg fish, and unless it is rectified will seriously affect the marketing of the present season's catch.

A united effort will be made this winter by all fish dealers on Lake Winnipeg to improve the quality of fish produced on Lake Winnipeg.

Our winter production on Lake Winnipeg is principally saugers. These saugers are marketed in competition with Lake Erie Blue Pike, which is marketed in perfect condition as to quality, being close to the markets and having great advantages in transportation facilities.

The condition in which our fish reaches the ultimate markets is our problem. Therefore, improving the packing, handling and shipping of our fish is of the utmost importance.

The co-operation of every fisherman, packer, and dealer, is necessary to effect this improvement.

Better quality fish will undoubtedly create a greater demand for our product, ensure a better market, and lessen the carry-over from season to season. No doubt in time to come the fish producer will be rewarded by increased prices, generally benefiting the fishing industry as a whole."

RE: FROZEN FISH

"Nets should be lifted every four or five days, and in no case should a net be left in the water beyond seven days without lifting. This is very important as drowned fish has a lot to do with impairing quality.

All fish must be carefully examined and well packed.

Standard size frozen fish boxes must not contain more than 140 lbs. of fish. Boxes weighing between 130 lbs. and 140 lbs. are considered to be the nicest pack. The other extreme, of packing 100 lbs. to a box, must be avoided.

All discolored, drowned, or otherwise damaged fish must be packed in separate boxes, and marked No.2.

All boxes must be clearly marked for identification. Packer's name or initials must be placed on each box with a stencil or rubber stamp.

Care must be taken in the storing of fish after it is packed in boxes. This applies especially to the early part of the winter season, i.e. November and the early part of December. The boxes must be piled up in a well shaded place and not exposed to the sun or wind."

RE: FRESH FISH

"Fresh fish must be carefully examined and well packed.

Boxes must be lined with waxed paper before icing.

The frost must be taken out of the ice before the fish is packed. Where it is not possible to keep ice in a warm place, pouring water over the ice will help defrosting.

Pack fish in fine crushed ice, not snow.

52 lbs. of fish must be packed in a 50 lb. box.

Under no circumstances must drowned or otherwise damaged fish be packed with fresh fish.

If the above instructions are carried out, the fishing industry will be greatly benefited and will place Lake Winnipeg in an enviable position in the market.

LET QUALITY BE OUR WATCHWORD."

Now the question arises as to whether or not high quality can be maintained by circulars and other devices of an educational nature. It may be suggested that with no other primary commodity has it been possible to maintain high quality standard without rigid inspection and/or legal grades. Just how this might be attempted for fish has been studied and discussed by the trade and the Department of Natural Resources for some years. The discussion should be re-opened and as a contribution to it the following is suggested.

Fundamental to an understanding of the problem of quality is the fact that there are too many fishermen engaged in the industry. For example: on Lake Winnipeg the summer whitefish catch is limited to three million pounds. There were last summer, 160 boats fishing for this limit. The cost of operating these outfits would be some-

where in the neighborhood of $220,000. If the fishermen were paid 8¢ a pound the total value of their catch would be $240,000. If all outfits obtained an equal share of the limit the profit for the fisherman-operators for the season, would only be about $ 125.00. Actually some may make more than this average but a larger number fail to pay costs and the rest just about break even.

It has been suggested at various times that if licenses were limited to not more than 125 boats, that many advantages would result. Fewer fishermen would mean that more of them would have a much greater chance of making a better living: there would not be the same competitive urge to get as big a share of the limit as soon as possible, thus permitting more and better care of the fish.

Somewhat similar conditions exist in the winter time where fishermen out for a large catch operate so many nets that regular and timely lifting is not possible and as a result many drowned fish come on the market.

During the hearings of the Fish Commission of 1933, the writer asked fishermen, packers, and exporters if there were too many fishermen. The answer was almost invariably, yes. No one questioned however, would accept the responsibility of publicly suggesting the manner in which limitation could be affected. What we now suggest is not advanced as the final answer, but rather as a positive contribution for a basis of progress,- if such is deemed advisable.

Every packer or first receiver of fish in the Province should be licensed. The license would be cancelled on breach of such regulations as are to be enforced to promote the production and marketing of quality fish. Most packers or first receivers of fish do not want to accept poor quality products but if they attempt to turn them back they endanger their competitive position. As licensed and regulated first-receivers all are on the same basis and while abuse might creep in they would not persist for long.

For obvious reasons it would be impossible to enforce the regulations by the inspection of all receipts at all points. It is possible, however, as is done with other products, to develop a system of surprise inspections.

As for regulation of the number of fishermen, the present number might be fixed as the maximum. Those holding licenses at present, by right of experience and priority, would be conceived of as holding a permanent license renewable each year by payment of a fee but subject to forfeiture through violation of the regulations. As licenses were cancelled, for any reasons, no new ones would be issued until the number is reduced to that figure which the administration considers ample. Cancellations below this point could be filled from a filed list of applicants. Various devices could be devised to distribute these licenses in an equitable manner.

Conclusion.- It is hoped that this report, which is one of a series on "The Economic Resources of Manitoba" will provide the citizens of this Province with a greater knowledge of what is essentially their own business, even though such a relationship seems

very remote. Many of the problems of this Industry, particularly the problem of conservation, will not be adequately and intelligently attacked until widespread public enlightenment and support provide a basis for active policies.

APPENDIX

ABSTRACTS FROM THE REPORT OF THE FISH COMMITTEE OF THE INDUSTRIAL DEVELOPMENT BOARD - 1932

In normal times the industry employed approximately 5,000 persons and sustained a population in excess of 25,000. Its importance as compared with some of the leading manufacturing industries of Manitoba, from an employment standpoint, may be seen from the fact that average employment in the industry is nearly four times as great as in the Province's largest manufacturing industry, Slaughtering and Meat Packing. It employs more than four and one half times as many people as in the Province's 67 Butter and Cheese plants, and five times as many as the 136 Bread and other Bakery Products factories. A recent survey of the fishing industry and related industries showed 3,821 persons engaged in fishing, packing and trucking; 100 in seaming nets; 50 in cold storage plants; 50 in direct handling on railways; and 160 in miscellaneous labor.

A special committee representing the Fish Committee of the Industrial Development Board and the fishing industry, has recently completed a survey to estimate the expenditures made by the fishing industry directly, and in the communities sustained by it. This survey covered all commercial fishing operations carried on in the Province, and the estimates are based on a sustained population of 25,000.

Out of the revenue obtained from the fishing industry there is paid out in licences and rentals to the Provincial Government $26,400; for truck repairs, gasoline and oil truck operations $89,100; gasoline for boats $28,507; boxes $115,000; horse feed $13,725; cold storage $50,116; nets and lines $230,000; boat replacements and upkeep $114,119; fuel $48,065; telephone, telegraph and miscellaneous office expense $30,127; premiums on approximately $750,165 of insurance carried on the assets of the industry. In addition to the above $480,120 is paid for freight and express on fish shipments.

Among the sustained population in the fishing districts, who are largely sustained out of the industry, $1,240,635 is spent annually for food; $505,342 for clothing; $170,128 in taxes; $300,420 for fuel; $166,000 for miscellaneous expenses; $100,117 for capital investments.

Some indication of the market among this sustained population for the industries of the province is seen in the following estimates of supplies used in a year. Of particular interest in this connection is the fact that very few agricultural operations are carried on in the fishing districts and products of this nature must therefore be supplied from the agricultural section. Many of the articles listed are

manufactured in Manitoba and, thus, these industries also are aided.

Estimate of Consumption per Annum by Population Sustained by the Fishing Industry in Manitoba

	Quantity		Quantity
Flour	4,425,000 lbs.	Bread	1,825,000 lbs.
Dressed Meat	3,625,000 "	Socks	100,000 pr.
Eggs	425,000 doz.	Suits	5,000
Lard	250,000 lbs.	Overalls	75,000 pr.
Milk	1,325,000 gal	Shoes (2 pr.year)	50,000 "
Butter	425,000 lbs.	Gloves & Mitts	50,000 "
Cheese	100,000 lbs.	Fresh Vegetables	
Condensed Milk	350,000 tins	Potatoes	75,000 bus.
Coffee	300,000 lbs.	Carrots	50,000 lbs.
Tea	25,000 "	Cabbage	375,000 lbs.
Sugar	2,550,000 "	Onions	250,000 "